



THIRTY TO NET ZERO

ISSUE NO.14 VOL 2

2022

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In Food Tech, You Need To Make Environmentally Friendly Food Using Technology And Innovation, Affirms Ofir Lazarov, Co-Founder, Foodtech Academy reichman University

**SPECIAL REPORT:
Schools and
Universities**

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T2NZ is published by:

Secretariat's World Groupe

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Editor's Note

Dear Reader,

Trust the fortnight has been a fruitful one? This issue is particularly close to my heart having spent a little more than a decade in education. Our issue 14 is centered on Sustainability and Education.

This time our magazine is replete with ideas, insights, and first-hand experiences. We had the opportunity to connect with Mejdal Al Qahtani, Assistant Professor at KSU. He shared his thoughts on sustainability initiatives that he has been part of and encouraged within the Kingdom. Then we talked with Katie Zawadieh and Fathima Beena, both educators with first-hand experience and suitably exposed to the challenges and opportunities in the growth of green education.

Brian Gray talked about how his school, Springdales School Dubai has incorporated sustainability on campus. We also got in touch with student entrepreneur, Ofir Lazarov who talked about how she went a step further and started Food Tech, an entrepreneurial program for young people. Last but not least Ritika Anand highlighted how the younger students at Deira Private school are working on including sustainability in their daily lives.

I also had the good fortune to e-meet Mai Shalaby, Nathan Britto, and David May. Each of these fabulous writers has articulated their ideas on sustainability in education and their experiences thereof through opinion pieces.

Through the articles, I have highlighted various facets of sustainability in education from a glo-cal perspective.

All in all, I have tried my best to get you news, views, and opinions on the subject at hand.

I do hope you enjoy reading it as much as I have enjoyed working on it!

Best Regards

Katherine Abraham
Assistant Editor
Thirty to Net Zero



SUPER CHRONOMAT

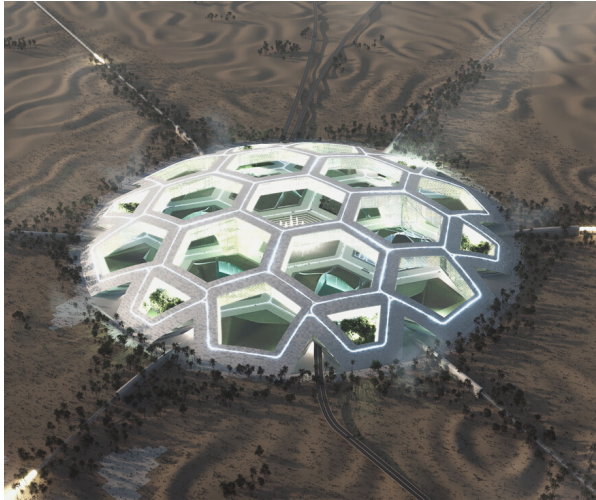


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NEWS



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NEWS



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DUBAI'S BLUEPRINT TO 'ACHIEVE FINANCIAL SUSTAINABILITY' IS OUT

Dubai's Department of Finance has come up with a new strategy to boost financial sustainability to place it as a global finance hub. The emirate will use "the best smart and innovative financial systems" to achieve this strategy by 2026

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Jordan has expanding its renewable energy sources to 50 percent of the total energy mix by 2030, according to its Energy Minister Saleh Al-Kharabsheh.

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EGYPT: BIDDING STARTS FOR WATER DESALINATION PROJECT

Dubai Electricity and Water Authority (DEWA) has announced that its 3 million imperial gallons per day (MIGD) Water Microfiltration project in Hatta would be completed by the end of the year.

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THE CRUX OF SUSTAINABILITY EDUCATION IN THE MIDDLE EAST

The environment has become a growing concern at the global, local and glo-cal levels in the past few decades. Governments around the world have expressed commitment to promoting approaches to environmental sustainability through their national curricular aims in widely varying degrees.

Audrey Azoulay, UNESCO Director-General says, "Education must prepare learners to understand the current crisis and shape the future. To save our planet, we must transform the way we live, produce, consume and interact with nature. Integrating education for sustainable development into all learning programmes must become fundamental, everywhere."

Critical pedagogies can support learning for environmental sustainability, but teachers in countries may sometimes struggle to facilitate such pedagogies as they drive students to indulge in theory over experiential learning. In an investigative study by researchers in Lebanon, an otherwise conflict-affected area, they conducted semi-structured interviews with teachers across 21 public schools that revealed findings that despite their commitments to caring for the natural environment, pedagogies and policies are, by and large, inadequate to foster citizenship for environmental sustainability. But Lebanon is in the minority when it comes to climate education.

Should one look at Saudi Arabia, the Ministry of Education organised the International Education Conference and Exhibition (ICEE) at Riyadh International Convention and Exhibition Centre in May 2022, with the aim of reviewing the opportunities available to develop education in the Kingdom and the incentives to invest in it, as well as preparing solutions that could visibly contribute to overcoming the crises and challenges facing education, enhancing the efficiency of its institutions and improving its outcomes in accordance with international standards and indicators? This particular conference is of importance given that a total of 253 educational institutions, including 108 local institutions and 145 international ones participated in the conference, along with a number of universities, local and international education centres, officials from the Ministry of Education, international educationists and investors in education participated.

NORRAG / Norrag

While 82% of the analysed programs report positive outcomes in environmental knowledge, a mere 16% of the programs report positive outcomes in improving learners' environmental behaviour and this is critical given that a student is not affiliated to a school or university throughout his/her life. Hence conferences like the ICE must receive impetus.



Hands-holding-a-plant / Telegraph

It is interesting to note the kingdom's journey since its First Voluntary National Review on Sustainable Development, delivered to the UN High-Level Political Forum where it stated that the country believed in the power of education giving all the needed attention and resources to utilise the education sector as an enabler. In fact, a "Royal Order was issued to include the SDGs into education curricula" to enable the achievement of the Saudi 2030 Vision by raising awareness and understanding of the sustainability concepts and issues in the field of education. Integrating ESD into the public education curricula would involve progressing considerably. Recently Mawhiba Secretary-General Dr. Amal Al-Hazaa praised the partnership with the ministry and hailed its role in creating the appropriate atmosphere for students from both genders, discovering, nurturing, and supporting Saudi talents and creators, improving their capabilities, and developing their scientific projects. Citizenship education is now no longer a theory.

In another instance Minister of Education Mohammed bin Hammad highlighted, "The Ministry of Education seeks to enhance the benefit of Saudi students by signing memoranda of understanding for scientific and research cooperation between Saudi universities and their American counterparts," when asked about partnering with the USA. Currently, there are 20,639 Saudi students and trainees studying in American universities and other educational institutions, and the number of Saudi students graduating from the US during the past 17 years has reached more than 167,729.



Countries like Greece offer Greek educational intervention as a day-long activity and is offered to secondary students generally by a local Environmental Education Centre which caters to public schools in Peloponnese, Greece. The program includes a visit to a local hydroelectricity dam and its environs, where students are shown first-hand the explicit and implicit effects of damming on the natural environment. Through participatory, cooperative and problem-based pedagogies, the students realise that a hydro dam is an intervention with interconnected, and ambivalent consequences. But the work doesn't stop here as at the culmination of the program, the students must debate and through informed decision-making prepare a hypothetical proposal for the construction of a hydro dam. These experiential programs need to get a proper push even in countries in the Middle East.



When it comes to citizenship education, the need to constructively introduce, infuse and induce knowledge, skills, attitudes, and values will ensure that students are made aware that local decision-making affects the local environments. In this interdisciplinary program, the environmental educator integrates basic elements of environmental education in a way that it must be palatable. This was established at the recent UN Summit on Sustainability.

While presenting the UAE's Sustainability Initiatives Report to the UN, it was noted by Obaid Al Dhanhani, Ministry of Foreign Affairs, UAE, that "Over 22 million students participated in this year's edition of the Arab Reading Challenge. At the Digital School, its overall spending amounted to AED253 million in 2021, benefitting over 48.4 million people around the world, due to the belief of His Highness Sheikh Mohammed bin Rashid Al Maktoum, that shaping a better future lies in drafting strategic plans based on science and knowledge, with clear and accurate objectives."

But is this really enough? In some ways, yes. In many ways no. For example in many parts of the world including the Middle East, teachers are sometimes resilient to teaching when it comes to the environment. Teachers report that they do not feel comfortable working on subjects that are distanced from their own specialities. In a nutshell, interdisciplinary pedagogies are not always seen as compatible with the contemporary subject-based organisation of knowledge.

Since interdisciplinarity is essential to Environmental, Sustainability, and Global Citizenship Education, a further conflict between these two disciplines and the current educational ethos is almost inevitable. A clear understanding of institutional dynamics is at the root of a more prolonged resistance to the implementation of integrative pedagogies will facilitate future planning. Education is at the root of every industry. Without adequate knowledge, we cannot have industry-ready students.

With a view to enabling citizenship education, it is reported that the emirate of Abu Dhabi's most sustainable schools decreased average waste generation per person from 99 grams to 55 grams per day over the last two years. And that was when the journey had just begun a few years ago. Much has changed since.

In the latest, The Royal Grammar School Guildford Dubai is slated to be the first near-energy-neutral school in the Middle East thanks to solar panels in their car park and on the roof, and unique pillow-shaped pockets in the plastic ceiling, which allow light into the building, while simultaneously absorbing heat. It is said that each storey expands outwards, which automatically creates a shaded area that keeps the classrooms cool, and living walls with palm trees growing in the central atrium promote air circulation. The building won the Energy Project of the Year award at the latest Big Project Middle East Awards for its energy-efficient design and is the first school to be assessed by BREEAM- an international scheme that provides independent certification of sustainability performance.

Recognitions like the one received by The Royal Grammar school are a way of incentivising the children's ideas of sustainability too. Recently a few more schools that were awarded for their initiatives included Birla Public School for the 'Sowers and Growers (Kitchen Garden)' project, Pakistan International School Qatar for the 'Breathe Your Own Oxygen' project, Philippine School Doha - Junior High School for the 'Vertical Garden' project and



Philippine School Doha - Senior High School for 'Green Revolution: A Move to Environmental Sustainability project.

Should one look at another recent awardee, the Pristine School ensures that the students brainstorm ideas for the environment. Tasneem Usman, head of senior school at Pristine Private School, said, "Pupils ran a community campaign where they collected and handed out packed items like rice, sugar and lentils to workers. Our pupils also participate in clean-up drives across the city."

Similarly, other initiatives like the one carried out by the Emirates Wildlife Society in association with WWF (EWS-WWF) also held a workshop for students and teachers from schools joining the Eco-Schools UAE programme in Ajman. The bilingual workshop is said to have mentored over 100 students and teachers from 30 schools through Eco-Schools UAE to give them a clear understanding of how they can work using the programme's framework to achieve their environmental endeavours.



Lisa Perry, Programmes Director at EWS-WWF commented, “At this workshop, we saw students offering ideas and words of inspiration to other schools about to embark on their own sustainability journeys. It was a unique opportunity to engage and motivate schools joining the programme to understand how they could implement their ideas into reality, using their own creativity.”

The youth in the Middle East is also not far behind when it comes to contributing to a more digitally secure world that works for global citizenship. In sustainability, every effort counts. This is why Mariët Westermann, Vice Chancellor at the New York University, Abu Dhabi says, “We all must do our part to combat the effects of climate change, and it is a goal of my administration to strengthen our institutional efforts by better connecting the extraordinary sustainability work already being pursued by so many of you across our campus.” The University has an entire wing dedicated to Sustainability. NYUAD is popular for its Go Green Week, a week-long series of events, activities, off-campus trips, and tours for the entire NYUAD community apart from promoting sustainable dining, sustainable architecture and sustainable living.

King AbdulAziz University in Saudi Arabia has also received recognition for its stellar efforts in sustainability.

According to research, While the national population in the Kingdom grew by 110% in the last thirty years, the number of universities has increased by 528%, due to the oil boom of the late 1980s, in response to the rising demographic trend (40.2% of the population are under the age of 25), as well as the massive investment in universities towards creating a knowledge-driven economy as enshrined in the country's Vision 2030.

It is at the cusp of this intersection of sustainability and education that a team of research students led by Dr Sanjeev Rao, Assistant Professor of Aerospace Engineering at the Khalifa State University, is turning carbon composites from the aerospace waste stream into state-of-the-art bicycle frames, ideal for racing and completely custom-fitted to each individual rider as a part of their commitment to sustainability. Data from new research undertaken and expected to be published shortly by The Talent Enterprise has also predicted key shifts in the workplace from 2023 to 2030 with greater emphasis on environmentalism, activism and representation. The University has also been working on its water conservation. According to the Khalifa University authorities, it fosters an organisational culture that promotes energy and water conservation and engages with its stakeholders to encourage energy and water-saving behaviour.

Deena Habib, founder of Yspot, a platform that helps the youth connect with socially driven organisations and grants internships to youth while connecting them to businesses says, "At Yspot, our mission is to be as forward-thinking as possible and to nurture innovative minds by encouraging collaboration between youth and businesses by designing the programs to be mutually beneficial with the aim of growing both parties. We not only reward youth through exciting channels but empower them to also express their views and share their knowledge with organisations."

It is also interesting to note that external players and supporters like the Doha Bank are also making efforts to promote environmental education. Dr R. Seetharaman, Group CEO of Doha Bank, said: "Doha Bank firmly supports promoting environmental education among students through the ECO-Schools Program. We recognize the young generation's creative ideas and projects that promote environmental preservation and sustainable development which eventually make the world a better place to live in and for the future generation. We are pleased to see the effort made by the school's management, teachers, and students to innovative ideas and to complete the projects. We look forward to another successful ECO-Schools Program with enthusiastic participation from schools and students in Qatar."

Another such external player is Cyprus where the country is still waiting to make a mark in the field of sustainability. Hellenic Bank has proudly supported the Eco-Schools initiative for over 20 years, “Cyprus has a long way to go to achieve the 17 United Nations Sustainable Development Goals and we will contribute as much as we can to meet our targets, as this will make our country more competitive and productive and of course, environmentally friendly,” affirmed the bank’s Andreas Papadopoulos. With support flowing in for sustainability in learning, one can be assured of its workability in the MENA region.

In the words of His Excellency Dr Thani bin Ahmed Al Zeyoudi, Minister of Climate Change and Environment, “Youth development is a high priority for the UAE’s visionary leadership and stems from its conviction that when we invest in our youth, we invest in our future. The new partnership between the Ministry of Education and IRENA is indeed a promising one. Incorporating renewable energy and sustainable development into the educational curricula will not only enable us to harness young minds and prepare them to become environmental stewards but also pique their interest in pursuing careers in the emerging domains.”

Not just the UAE but the entire Middle East must rise to the occasion to ensure the integration of sustainability in education.



Treearset / squarespace

SOCIETAL TRANSFORMATION THROUGH SUSTAINABILITY EDUCATION IN SAUDI ARABIA

After the Kingdom introduced its Vision 2030, in sync with the Paris agreement, it promised to make an effort to reach an annual avoidance; of “up to 130 million tonnes of carbon dioxide (CO2) equivalent emissions ... by 2030. If reports are to be believed the country has made meaningful progress.

Addressing global climate and sustainability challenges, especially in the Kingdom of Saudi Arabia (KSA), the Saudi government acknowledges the need to examine its current educational policies and their contribution to the country’s economy and environment.

It is no small secret that contrary to the traditional methods of teaching, education for sustainable development includes adopting a more holistic approach with the aim of creating a better world for this generation and for the future generations of all living things on planet Earth.

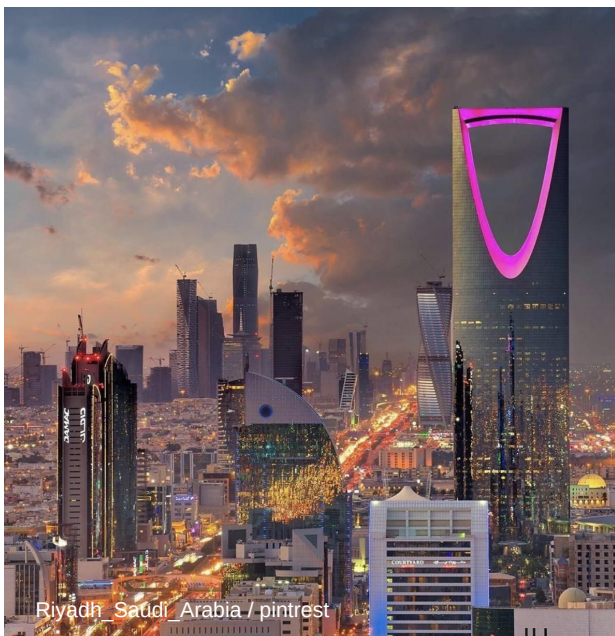
The acquisition of requisite knowledge, skills, attitudes, and values is slated to change the social landscape of the Kingdom of Saudi Arabia.

According to the World Bank, On a per capita basis, KSA ranks among the world’s highest emitters at 15.3 tonnes of CO2 per capita, compared to a global average of 4.71 tonnes. This makes it important to highlight, acknowledge and resolve the impending gap between rhetoric and reality, particularly concerning Saudi Arabia’s integration of sustainable development into its education policies, planning, and curriculum through Vision 2030.

Riyadh_Saudi_Arabia / atlantocouncil

The KSA government describes Vision 2030 on its official website as follows: Vision 2030 is a bold yet achievable blueprint for an ambitious nation. It expresses our long-term goals and expectations, and it is built upon our country's unique strengths and capabilities. It guides our aspiration towards a new phase of development- to create a vibrant society in which all citizens can fulfil their dreams, hopes, and ambitions to succeed in a thriving economy (para. 3)

Should one look at the core idea of Education for Sustainable Development there is no doubt that it incorporates key environmental challenges like climate change into core subjects like math, science, and art, and must modify the teaching-learning process to a more all-encompassing approach. Students through the process of experiential learning can understand what they learn in the classroom and incorporate it into their real life which allows them to take the lead in changing behaviours and adopting sustainable lifestyles. But this is just the tip of the iceberg. Since 2015, the prestigious Eco-Schools Green Flag has been awarded for excellence in environmental education and action-based learning. Interestingly, GEMS World Academy -



Dubai has achieved the rare distinction of securing the Green Flag for five consecutive years. These students have in many ways identified the need for environmental awareness messages in their school, so they created a vast mobile wall of used cartons piled one above the other! They have reduced the waste produced in their school and also saved school funds. These students put forward the important message within their school community and beyond, of creative and critical thinking to make maximum use of available and reusable resources. The question is can we have more such innovative programmes replicated in Saudi Arabia?

The increasing need to advance educational curricula that promotes care for our planet and addresses the issues of sustainable development can no longer be ignored. There is a visible link between education and progress on sustainable development goals. This link is embodied in Saudi Arabia's concept of Education for Sustainable Development (or ESD) and acknowledged in KSA's Vision 2030.

Climate change and environmental degradation are prevalent in most parts of the world and pose major deterrents to development on a global scale, especially in countries like Saudi Arabia. Integrating education for sustainable development is consistently a major component of recommended actions both in the Paris Agreement and other UN environmental frameworks. Saudi Arabia has policy documents that discuss the concept of sustainability in Vision 2030 in alignment with the UN sustainable development agenda.

Interestingly it has been reported that while there have been ideas and information given on ESD in these documents it is limited and superficial, and the prime focus in these documents was on other- education-related



topics such as education for the labour market, improving facilities, services, and scholarships, higher education (including women's education), Child Education, vocational education, and even traffic education.

The news that recently focused on women's education was perceived as a response to the criticism made internationally about Saudi Arabia and gender-based discrimination on access to education. Also, much of what the Saudi government has presented is in terms of discourse about sustainability and as far as SDG4 is concerned it has addressed issues such as improving the efficacy, and the quality of education and the teaching and learning processes in a broad manner.

The Kingdom of Saudi Arabia has much to learn and much more to implement, not just in education and environment but in building its social image to be a powerful leader for sustainable education and it can happen if adequate attention is given.

According to Arab News, exchanging global expertise in education, best practices in the quality of educational outcomes, and financing and investment in education was a part of the agenda at the conference on Education held earlier this year. Saudi Education Minister Hamad Al-Sheikh, his Egyptian counterpart Tareq Shawki and UAE counterpart Hussain Al-Hammadi, British Prime Minister's Special Representative to Saudi Arabia for Education Steve Smith, and Global Director for Education at the World Bank Jaime Saavedra talked about the future vision for Saudi Education as well.

The concept of citizenship should not only be given as a particular course, at a particular time but rather be immersed in the values and principles taught in all classes and scholar activities,” says Global Citizenship Education in Riyadh, Saudi Arabia, Secretary General Faisal bin Muaammar

When one is invested in Education for Sustainable Development it can help change our future. Continued support from authorities, appropriate policies and laws, responsible action by individuals and communities, and above all a deep compassion for our planet will together serve to attenuate the global environmental crises we face today. What a child learns during this process shouldn't stop there – it must be practised by the family too. Wise use of water, electricity, and resources both at home and in the workplace should become a part of natural behaviour as parents and caregivers so that our young ones learn by imitation.

Greater efforts are required at an individual and community scale to reduce waste, recycle regularly, and opt for public transport to demonstrate the importance to our children of living more sustainably. Should the Saudi Vision continue to evolve it can be the ideal platform for children to exercise and experience what they learn in the classroom. Education, training, and skill development can significantly influence employment generation, economic growth, and social empowerment which is true of any country seeking to adopt good educational practices. Educational institutions should create a learning platform for digital skills so that young people can acquire digital competency to keep up with the current changing learning environment.



Riyadh-Saudi-Arabia / The Times Of Israel

The Eastern Mediterranean University (EMU) has highlighted the service role of corporates towards their social responsibility by facilitating the students and academic staff with free internet services. Higher education is expected to have planners should who are invested in instituting a knowledgeable workforce for a knowledge-based economy. The pandemic brought with it a lot of adversities for the common man and governments alike but given the situation online learning became prevalent, and instructional activities became a hybrid in Saudi Arabia transforming the learning opportunities. Value-additions in the form of blended learning began to overtake traditional forms of in-person learning. Saudi Arabian universities are required to increase their capabilities to develop missions to fulfil the current labour market's demand to meet community needs. Knowledge transfers are as important as creativity and innovative technology. In the words of architect Amin Alafi who specialises in sustainability initiatives, "Technology is the tool, not the solution, the solution is building to suit the environment, not trying to have the environment suit you." Technology-enabled learning has played a critical role in metamorphosing teaching methods as an appropriate interpersonal approach for model-building.

Education for Sustainable Development does not start or stop at being environmentally friendly; it must involve leadership, communication, and management building; all of which are extremely important for personal development. By equipping young people with these relevant capabilities in addition to their environmental knowledge, they can excel at living lives that further the cause of humanity, and helps to show care for and respect for our planet's resources too.

"Education in Saudi Arabia is the cornerstone through which we can achieve our nation's aspirations towards progress and advancement in sciences and knowledge," said Custodian of the Two Holy Mosques King Salman bin Abdulaziz.

As Undersecretary of the Ministry of Economy and Planning for Policies and Economic Planning Ayman bin Ishaq Afghani commented at a recently held UN forum: "The world is currently going through an important phase that requires all of us to cooperate and know what we need right now, and where we should be in the next stage so that efforts can yield real results that will benefit the local and global levels."



Saudi_women_Reuters / Thearabweekly

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“THE ‘SECRET SAUCE’ FOR US AT SPRINGDALES IS THE WHOLE OF SCHOOL APPROACH TO CLIMATE CHANGE AND CLEAN ENERGY,” SAYS DR BRIAN GRAY, PRINCIPAL

At the world slowly transforms into a powerhouse of sustainable innovation, educators must play a significant role in imprinting the importance of sustainability on young minds. Teachers and Principals are expected to be not just world-aware intellectuals but lighthouses of environmental awareness, Tomorrow is Today.

The Principal of Springdales School Dubai, Dr Brian Gray has made it his personal goal to make a difference in the world through his students.

Having worked in different schools since 2015, he is aware of the challenges of the social and educational landscape and has slowly begun creating a significant change. The school that he currently leads interestingly finds a firm foundation in the more Sanskrit Vasudaiva Kutumbakam- the world is a family and keeping this in mind he has built the foundation of sustainability which is quintessential to treat the world as a family in all practicality.

From curricula to extracurricular activities, Dr Gray is working on creating a generation of young climate warriors. Read more about the Springdales School and the leadership of Dr Gray in this engaging interview exclusively on Thirty to Net Zero.

Q: With Food, Agriculture, Natural Resources, and Human Sciences (FANH) literacy becoming a real tool for preparing all global citizens for the most pressing global challenges of today and tomorrow, how does Springdales take into account the use of technology and the principles of sustainability and carbon neutrality through both its curriculum as well as other initiatives?

A: When we were first thinking about our students’ roles as global citizens, we asked students for their opinions. We then looked for tools and key points in the curriculum that could support the student’s eagerness for environmental change. We have traditionally extracted and reinterpreted the current curriculum and then value-added through awareness strategies such as theme days, assemblies, competitions, expos and forums.

FANH literacy came along at the perfect time for us as we had been building awareness for quite a while. Like all good teaching and learning the students are now driving us into new technologies (apps etc.) and new sustainable ways of working as they are fully committed to changing the world.



Q: How did you get involved in the education sector, eventually becoming a leader in the UAE's education system through Springdales?

A: I came to the Middle East as an experienced Australian Principal in 2015 and I have essentially worked with firstly, locally run schools in Abu Dhabi and then in the private education sector here in Dubai. I am in my third year as Principal at Springdales and I see this as my legacy school especially having guided the school through the difficult pandemic period and now into what I am sure will be a very successful period of growth for this well-established Dubai institution.

I also know that for big issues like climate change we must influence outside of Springdales and recruit other schools, other families, and other students to create a critical mass of climate warriors to support the initiatives starting here in the United Arab Emirates.

Q: Your school has been recently awarded the Global Climate Award for Green Projects and Eco-Schools Green Flag Award. Please tell us more about these projects and Springdales' involvement. It would be great to spotlight the students as well.

A: We participated in the Take Action Global (TAG awards) whose mission is to empower one billion students to take action for a cleaner environment by the year 2030 through programs including the Climate Action Project. With a vision of climate education for all, Take Action Global combined environmental curricula with student-led projects, sharing ideas and experiences with local and global communities, education leaders, and partner organizations. Partners include the UN Foundation, NASA, WWF, Cartoon Network, LEGO Education, and the Earth shot Prize presented by the Royal Foundation. Springdales School registered for a climate action project for 2021.

The project started on September 27th and ended on November 6th, 2021. It was a six-week long program. Students explored, brainstormed, created, and solved problems and shared findings and solutions to important questions including, what is Climate Change and what would be your definition? What causes Climate Change locally? What are the effects of Climate Change locally? What are the causes and effects globally? What are potential solutions? We had live interactions with other schools too. The project allows the students to be creative, collaborate, understand empathy, think critically and take action.

We encourage pupils to learn more about climate change and to raise awareness of environmental issues. Pupils have brainstormed solutions to environmental issues and focused on the UN Sustainable Development Goals. The school has a recycling project in which pupils bring in newspapers, plastic and cans and a cleanup programme. The project allows the students to be creative, collaborate, understand empathy, think critically and take action.

Q: How does Springdales embody Climate Change & Clean Energy and develop the student's interest in a Circular Economy, particularly in the Middle East?

A: I think the 'secret sauce' for us at Springdales is the whole school approach to climate change and clean energy. Any student that joins our school is immediately touched by an awareness that they have a part to play in the creation of a global sustainability solution. They know the changes that are needed and they know they have actions that they must take to reverse the damage that has been done by previous generations. This starts in pre-KG classes and remains a focus right through to Grade 12.

Entering and winning awards is a way in which we build a profile and message to others in Dubai. With the TAG award, Springdales School along with other schools nominated themselves for their climate education work and submitted their work for the year and met extensive criteria, including a school-wide commitment to climate education and student solutions.

Five schools in the UAE have won a global award for their efforts to protect the environment and tackle climate change. Springdales School Dubai is one among the five schools that have been awarded "The Climate Action Project School of Excellence". This was announced at the Cop26 climate summit in Glasgow, Scotland held in November 2021. The selected 250 Climate Action Project Schools of Excellence were announced on Climate Action Day, held on November 4 in 135 countries.



Q: The education industry is going through many changes to bring it firmly into the digital and start-up era. Please tell us what you feel would be the one positive change from a foundation to the middle school level that could be implemented to raise the education industry standards in the region.

A: I am not 100% sure that I agree with your premise that we are truly embarking on a significant change in education post-pandemic, and I am certain that the digital changes are not the panacea to raising educational standards. There are some great developments in educational technologies but they are in the majority still being driven by an antiquated and irrelevant system that still relies upon students' ability to repeat information in a high-stakes testing environment at the end of the academic year and these 5 - 7 days of examination still determines the students future options.

The more effective model we have developed at Springdales is the notion of teacher excellence through observation and feedback from leaders, peers and students. Working in groups from a very early age and providing the opportunity for peer review, supportive roles, and self-reflection. Continuous assessment and target setting again provide in-time feedback for improvement for both students learning and teachers' pedagogy and an emphasis on using technologies to access content and enhance opportunities for further feedback and conversations about performance improvement between students, teachers, and parents.

I would personally love to see the introduction of e-assessment tools that are a catalyst for deeper student reflection on the WHY of their thinking and how their thinking relates to their personal beliefs and the wider global context.

Q: Obviously, the passion must come from the top for action towards regional SDGs to be inculcated at a granular level into an organisation's DNA. Such is the case with Springdales. It would be great to find out who or what laid an indelible mark on your mind and heart and how.

A: I have had a long-held habit of reading about leadership and change and in 2009 I came across a book called "Why We Disagree about Climate Change: Understanding Controversy, Inaction, and Opportunity" by Mike Hulme. He uses different standpoints from science, economics, faith, psychology, communication, sociology, politics, and development to explain why we disagree about climate change.

He attacked climate change from a position of revising our perception of our roles and responsibilities as global citizens which resonated with what I have learned and developed as an effective way to implement sustainable change in organizational behaviour.

I found myself revisiting the opinions and strategies I formed from this reading many times over the following 13 years especially in the past decade as climate change awareness has gained more and more significance.



As I am participating in this interview I am travelling in Western Europe and seeing many smaller electric vehicles everywhere, wind turbines on the landscapes, cities with prioritized bicycle tracks, water in a glass or biodegradable containers, and groceries packed in recyclable paper bags. It is also a period of record high temperatures and wildfires, and I am watching news programs that have moved from the old debate about whether climate change is real or not, and are now dominated by damning pieces of evidence and calls for urgent action.

Change is well on the way and I know our young people are on board, the pressure on politicians to reduce emissions and meet reduced carbon targets is getting louder by the day students from Springdales will not settle for anything less than real action.

All Photos Provided By Bgray_Springdales



ECOLITERACY: THE NEED OF THE HOUR

The former UN Secretary-General, the late Kofi Annan said, “On climate change, we often don't fully appreciate that it is a problem. We think it is a problem waiting to happen.” That is exactly what the world was doing, postponing the worst of our nightmares to the future. Until the future became the present. Suddenly, the world was scrambling for solutions.

This was also the time when the idea of educating young children about the impending environmental crisis became imperative and the UNESCO introduced the Education for Sustainable Development programme. Yesterday's dramatic idea was today's research and innovation. The focus shifted to student education on this critical topic with a reminder that the collective activities of human beings altered the earth's ecosystems so that survival became an issue with changes more difficult to reverse every day.

Enter young Greta Thurnberg who decided her basic survival was more important than simple black and white texts on a page.

And it is here that one must take a thoughtful pause to understand what are the possible ways in which a school, college or university can become a natural catalyst for renewable energy and sustainability in education. Take Fairgreen International School which was established by Esol Education for example which is 100% powered by renewable energy sources, saving roughly \$43,000 in monthly energy costs. Located in Dubai's Sustainable City, the campus recycles all its water for agricultural use and is specifically designed for minimal environmental impact. The school's mission is to provide an exceptional international education that embraces sustainability in all its forms. The school's mission statement reads, “Our mission is to provide an exceptional international education that embraces sustainability in all its forms.” Their Director added to this mission statement in an interview, “Our graduates will understand the urgency and importance of sustainable living, which will guide their academic and career choices. They will be pioneers of renewable energy research and urban agriculture, eco-entrepreneurs and public policy change makers.”

When it comes to something as catastrophic as global warming one needs to address environmental, social and economic issues in a holistic way. UNESCO's ESD for 2030 education programme aims to bring about the personal and societal transformation that is necessary to alter the course of environmental change.

Higher education institutions play a paramount role in the promotion and implementation of the 2030 Agenda for Sustainable Development Goals (SDG)) developed by the United Nations and it becomes imperative to note that schools like Fairgreen must only multiply.

And that needs enviro-conscious educators like Jen Mason who narrated her personal experience in Middle East Sustainability, "Reflecting on the state of the world, I had to face the fact that despite decades of effort on the part of thousands of educators like me, things were not better than they were in the 1970s and 80s when environmental education efforts began in earnest. In fact, by most metrics, the social-ecological challenges were worse." Jen is one among the handful of educators who recognised the need for creating a Gen-Enviro-Conscious rather than a gen-next or a Gen-Z. But the priorities of a few thousand in a world of 8 billion people were like a drop in the ocean.



Ecoliteracy / istock

Take Emel Okur-Berberoglu an educator from Turkey, who says, “Ecoliteracy can be defined as an understanding of natural systems and connections between biotic and abiotic factors within a sustainable future. Green consumerism is an observable side of eco-literacy.” It is important to note the kind of practical eco-literacy we can introduce in schools. Recycling old furniture and buying second-hand ones can be easy and affordable. Given that most schools prefer to change or replace furniture every few years it becomes important to see if there are good alternatives to recycling.

Recycling stations can be installed on college campuses easily that will encourage a number of students to dispose beverages right from water to cola and others used in the best way possible. Water refill stations are an excellent way of curbing the nuisance of plastic bottles in a large way on campuses. Incentivising the reduction of food waste is also a good way of promoting food sustainability awareness among young students.

Community refrigerators have been started in many countries. It would prove worthwhile if schools, colleges and universities can have one placed in strategic locations just outside their campuses so no one goes hungry. For the driven, the sky is just a curve, not the limit.

Starting a campus garden that is exclusively taken care of by young students will also allow them to learn more about nature. When teachers and parents leave the room, they must ensure all the lights are turned off or turn them off themselves. This would inculcate a conscious responsibility in a lot of young students.

Education leaders can increase and promote recycling awareness among students and faculty and pave the way for implementing other sustainable practices. Colleges and universities can achieve the reduction of their ecological footprint well beyond standards by pursuing and improving a sustainable campus but only by making them aware of carbon footprints, carbon handprints (Read our earlier issue 11 [PS1] featuring Jonathan Wood of NESTE), and environmental impact as more than textbook terms.

So how do other universities and schools across the Middle East create a visible impact? Egypt Today reported that “Egyptian social entrepreneur, Mohamed Abdel Samad, 29, founded Shagara initiative (“Shagara” is Arabic for “tree”) shortly after the 2011 revolution. He developed an idea to utilize the wide spaces on rooftops and in the surroundings of the schools – which more often than not attract garbage dumps – and turn them into real sustainable farms. The project would eventually promote a healthier ecosystem, engage the students in a productive project, and provide a source of income thanks to fruit-yielding trees and plants.”

Samad is not alone. Cairo Scene reported in 2021, “Go Clean’ has partnered with the Ministry of Education and Banque du Caire to kickstart the ‘My Clean School’ initiative.

'My Clean School' looks to supply 150 schools in Cairo, Giza, and Alexandria with recycling bins to kickstart their eco-friendly journey and instil environmentally-conscious ethos in the next generation. 50 schools in Giza have already been gifted with recycling bins, with many more to follow across Egypt." At a university level, the American University in Cairo is leading from the front by choosing to infuse the landscape with elements of the living environment, adding nearly 150 different species of plants – a mixture of international and native Egyptian – and more than 8,000 trees.

The United Arab Emirates has the GBC initiative whose motto reads, "The Emirates Coalition for Green Schools brings together the UAE's strongest advocates to create a national platform for the proliferation of green schools in the UAE. Sharing the vision of the Global Coalition, the Emirates Coalition for Green Schools aims to ensure that every child in the UAE learns in a green school within this generation. The Emirates Coalition focus ranges from K-12 up to tertiary level institutes." The Emirates council recently partnered with Saint Gobain to check the indoor air quality. The Study is reported to have focused on measuring the Indoor Air Quality (IAQ) along with IEQ factors such as lighting, acoustics, and thermal comfort in critical areas of the school. They later study the impact of these parameters on students' health, productivity, performance, and physical and mental development.

It's no longer about understanding and learning what climate crisis is but figuring out the impact it has on students as well and UAE is an exemplary example of this. Empowering the students with the knowledge, skills, values and attitudes to become agents of change is the second most important for the international community to build on.

The international community recognizes the importance of education and training to address climate change. The UN Framework Convention on Climate Change, the Paris Agreement and the associated Action for Climate Empowerment (ACE) agenda all call on governments to educate, empower and engage all stakeholders and major groups on policies and actions relating to climate change.

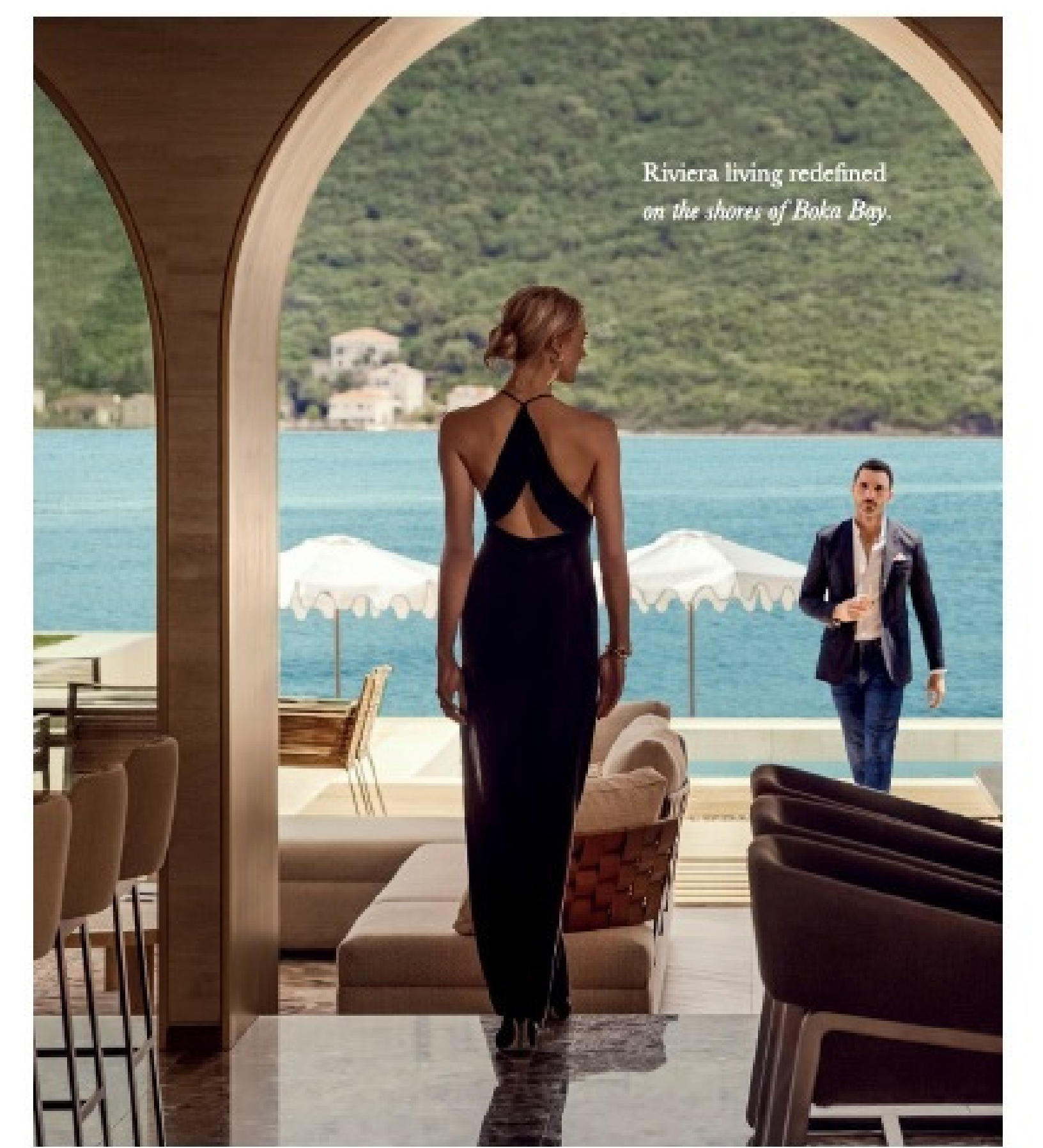
One can only recall Greta Thunberg's challenges which were aptly recorded in the Guardian, "You may think this would put the weight of the world on the 16-year-old's shoulders, but she claims to feel no pressure."

And as the young girl herself said, "I don't care if what I'm doing – what we're doing – is hopeful. We need to do it anyway. Even if there's no hope left and everything is hopeless, we must do what we can."

We need more of these young climate activists out there in the Middle East, Europe and the rest of the world. The world needs change. The world deserves change!



Nature / Fitchsolution

A woman in a black, backless, floor-length dress stands on a terrace, looking out at a man in a dark suit and blue jeans who is walking towards her. The terrace is furnished with a light-colored sofa and several white patio umbrellas. In the background, there is a large body of blue water (Boka Bay) and a green, hilly coastline with some buildings. The scene is framed by a large, arched opening in a building's facade.

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IN FOOD TECH, YOU NEED TO MAKE ENVIRONMENTALLY FRIENDLY FOOD USING TECHNOLOGY AND INNOVATION, AFFIRMS OFIR LAZAROV, CO-FOUNDER, FOODTECH ACADEMY REICHMAN UNIVERSITY



As agriculture gradually regains its supremacy through the world's combined efforts in sustainability, participants and stakeholders should be casting an eye ahead, to safeguard food supplies against greater and more disruptive effects of climate change. Once again, innovation and advanced technologies could make a powerful contribution to secure and sustainable food production. This is where Ofir Lazarov creates her impact.

Ofir Lazarov connected with us from Tel Aviv. A student at Reichman University, Ofir is the co-founder and manager of a unique entrepreneurial program named FoodTech RU, for 35 students in the field of food technology. Ofir started as a child entrepreneur and gradually moved to creating the entire program at Reichman University with the help of three other students to Sustainability. Leading and organizing the weekly sessions, leading the marketing team, organizing conferences, and getting her alumni community together are her core responsibilities.

In this exclusive with Thirty to Net Zero, Ofir emphasizes the challenges that she has faced, the opportunities she has received as a very young entrepreneur, and how she wants to take the sustainability and education program further.

Q: What really caught your attention when it comes to food technology?

A: I have studied computer science and was really attracted to technology and innovation. In food tech, you need to make environmentally friendly food using technology and innovation and this appealed to me. Also, I really like to cook and bake and experimented a lot with food. You want to change how people consume their food and for me, this is important.

Q: When we look at food tech, on the entrepreneurial or education side, how do you help your fellow entrepreneurs to go forward, learn the best practices, and then start off?

A: In the last year and a half, I established an enrichment program in the field of entrepreneurship on Foodtech with a university for the students on campus every semester, which is to accept about 35 students who show passion and interest in this field of food tech. We meet them every week for lectures and tools in this field.

The program is divided into two parts. In the first part, there are lectures with the students to learn about Foodtech. And then in the second part, students are divided into groups to establish a venture. Each group is accompanied by a mentor from the industry and must attend lectures about building a business model and presenting a sellable idea to an audience. And in the final meeting, the students present the ventures in front of an impressive team of judges from venture capital funds in the field of food tech.

A part of our goal is also to expose the field of Foodtech, to students in other universities, and to be the connection between academia, institutions, and the ecosystem in Israel for which we had also organized several conferences this year. And that was a really big success with a lot of participants. These days, we are working on expanding the program to the need of the industry abroad for which we are working on finding students who want to establish branches of our program in their universities.

Q: A lot of young female entrepreneurs do face more challenges, or is it all equal? Is your area gender neutral, or, have you particularly faced a major challenge as an entrepreneur?

A: I feel that men and women are treated equally in my country, at least that has been my experience until now. In the future, there could be different challenges. In the beginning, when I wanted to establish the program, for about six months, everyone at the University told me, "No, we don't need this kind of program. No one cares about Foodtech." The uniqueness of our program is that we welcome people from all degrees, be it communication, computer science, law. The range is wide. Later, I connected to the three other founders from different backgrounds, and we established the program together.

Q: As sustainable food, technology can be deployed at key points along the food cycle, and it has the potential to promote a world with less hunger, better employment, of course, and responsible cycles of production, how do your students and organization help to embody these principles through your program?

A: In the program, we teach students about the entire food and supply chain from the production process to the moment it reaches the final consumer. We maintain our teachings to match the process in a logical order, starting with exposure to the field of food tech, then continuing to learn about the traditional food industry and its problems, and finally the transition to technological solutions for alternative protein production.

We focus on three different methods of producing alternative protein such as meat, chicken. The main methods are plant-based food and there is a fermentation production method and cell culture method. The participating students, who come to the program with a wide variety of degrees, we make sure to touch on a lot of different topics so that everyone can relate to something.

In the program we try to show them the challenges and opportunities in every step of the way of the food cycle that our students may have skills for - for students studying government, we brought a lecture on regulation, students studying computer science a lecture on AI, etc.

Q: As you are taking them forward literally from end to end, you're ensuring that they meet approximately all the challenges even before they've started out with their own programs as such, but how does your entire company operations involve carbon neutrality initiatives and sustainability initiatives within the operational center?

A: I believe that change starts from small actions, so it starts with small changes every day that each person adjusts to their daily routine.

At our events and meetings, we make sure to use reusable tools, but this is not the main thing that creates the existing problems in the world. In addition to that, it is important for me also to look at my plate in my day-to-day life, which is why I reduce meat from my life, I am not a vegetarian or a vegan, but since I was exposed to the issue, it bothers me more and more and I decided to reduce meat. Making a personal change in your way of life contributes not only to the human body (in terms of health) but affects the world more broadly and now as there are more good substitutes and even better products on the way to us it makes me want to be a part of it not only in terms of the entrepreneur but also on the personal side.





Q: Since the world is going digital, thanks to the COVID pandemic, as a student, what do you feel would be the one positive change in higher education that could be implemented in such a way that it raises the Global Education standard?

A: I think the program I established is an example of an amazing change that can happen in the higher education system. The uniqueness of the university where I studied is that student initiatives are strongly encouraged, like the program I founded, there are additional enrichment programs in a variety of fields. Students should be allowed to develop projects in which they apply tools they have learned in real life because this gives them many tools that enrich them as human beings. That's why I can say that I really push for student initiatives and projects to be something that is part of the study process, to encourage the student to be creative and go beyond what they are doing and that the students should learn how to link each field that someone is studying to some need or challenge in the real world.

In fact, no one is born an entrepreneur - and really I think that most entrepreneurs first ventures are usually unsuccessful because it takes time to learn it, and you have to experiment and fail a lot along the way. That's why this process is so important, to give the student exposure to the world of entrepreneurship, to give them tools, a framework, and support of Mentoring, things that are very difficult to achieve after they finish university.

Q: Tell us a little bit about any three food technology initiatives that have inspired you in Israel or globally.

A: The companies I chose that have the most impact on carbon neutrality and increasing sustainability in food production are companies from the alternative protein field that deal with protein substitutes in foods such as meat, milk, eggs, and fish. Those industries are the most polluting and really require a technological solution that will help deal with the sustainability challenges the world is facing.

There are companies in the field of FoodTech that strive to remove the animals from the equation and want to prepare the same food in a more sustainable way thanks to the technologies that we are now discovering.

The use of animals as a means of food production is neither sustainable nor efficient and produces negative effects, in fact, the raising of animals requires large amounts of food that goes to waste. Huge amounts of high-protein food are required to feed these animals instead of feeding humans, and this produces greater pollution.

3 such companies are Aleph Farms, Remilk, and Plentish, companies some of which I even visited. Each company attacks a different side of the challenges that livestock poses to us.



In the last few months, Remilk raised 125 million dollars to build a factory where they can produce the same amount of milk as 50 thousand cows. Each of the cows eats a huge amount of food, and in the future, we will not have this area because the population is growing. That's why their technology saves pollution, land, and huge amounts of water and food that need to be fed to the cows. In addition, if you look at the health aspect, moving to factories instead of using livestock saves us a lot of use of antibiotics, that today 80 percent of the total antibiotics consumed in the world goes to treat animals. Reduced use of livestock for eating purposes helps minimize the use of antibiotics.

The red meat industry is the most polluting of the entire food industry in terms of greenhouse gas emissions (60 percent of greenhouse gas emissions from all food production is from red meat only) and therefore it is the industry that is most important to develop technologically in it. A great example of a company in this industry is Aleph Farms. The company produces steaks of cultured meat directly from the animal cells without genetic engineering in the lab and is based on research of skin tissues from the Technion University, and in its last round it raised 105 million dollars.

Today, the company is in advanced stages of development and towards the launch of its first meat, minut steak, in the coming year.

In addition, the fishing industry is also very polluting. Industrial fishing leaves behind a lot of dirt in the sea such as plastics, and nets and therefore greatly pollutes the oceans and even destroys the life system of the animals that live there. The most common fishing method is trawling, which basically takes a net and drags everything that is on the bottom. In this method, they destroy the entire life system that is on the ground. In addition, there is a certain limit of fish that can be fished from the sea. An Israeli company called PLANTISH found a solution to this problem by 3D printing plant-based salmon pieces and they also recently raised 12 million dollars.

Q: Tell us a little bit about your journey as a student entrepreneur, as well as a book that you would recommend to all the young entrepreneurs out there.

A: I discovered my entrepreneurial side at a really young age. When I was 14, I started to organize summer camps in my yard for the neighbourhood kids and even employed friends and instructors. Later, after my military service, about five years ago, I started making jewellery as a hobby. When I realized that the demand for my jewellery from friends was increasing, I started an Instagram page and began selling my pieces through it, which eventually turned into a huge business. I finally stopped because I was travelling for a long time.

A year and a half ago, I came up with the idea of opening a program in the field of food tech. I'm proud of myself because I didn't stop even though at times I didn't succeed. It is a huge success during the year. And I'm glad that I stayed and didn't give up on it.

A book that I would recommend is 'Predictably Irrational' by Dan Ariely. The book teaches the essence of entrepreneurship, which is correct and rational decision-making.



All Photos Provided By Ofir Lazarov



SUSTAINABILITY IS BUILT ON THE INTERSECTION OF EAST-WEST INVESTMENTS IN EDUCATION

When the Covid-19 pandemic hit, the world believed that it was facing its biggest crisis. And yet post-pandemic we see that the world is grappling with the new realities to just restore balance. Balance is a two-edged sword because it is a lofty aim in principle while the practicality that surrounds this 'balance' is more often than nought, challenging.

The environment calls for immediate repairs. Environmental degradation is a pressing issue. The reasons persist in the form of the industrial revolution and population explosion and high demand for luxury items in life. But the solution to this issue is one where education plays a major role and to contextualise the issue further, education itself is in dire need of major improvements. Presently, it has been noted on various forums that the lack of proper education, awareness, knowledge, and approach of people towards the environment contributes to it perishing as quickly as it is. Thus, sustainable development appears to be a doom stay approach for various countries across the globe.

The need for a strong environmental education (EE) system with the responsiveness of humans towards nature for sustainability and environmental security calls for the East and West to unite for a cause, reform the educational system, invest in it and come together to identify and implement the best practices for Sustainability in Education.

Take the UAE as an example. The UAE's Vision 2021 seeks to establish the UAE as among the best countries in the world with a total of six national priorities that stand for key focus areas of government action including a first-rate education system for which the government has set targets on several parameters.

These parameters also include the UAE's rank in the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) — standardized assessments conducted globally.

Should one look at UAE's GDP growth, it is expected to stabilise at 3% to 3.5% over the next five years (to 2024). The UK curricula still dominate both the Abu Dhabi and Dubai markets,



because of the heavy investments but the UAE is open to investors who could consider opening US and IB curricula schools in the Emirates. The larger aim of such partnerships is to foster continuing bilateral ties and the easiest way for countries to come together is over an otherwise non-political subject like education.

Saudi Arabia has been attracting foreign investors ever since Crown Prince Salman has taken proactive steps to transform the country's social landscape. Reforming the educational system and preparing these future managers willing to implement sustainability policies in their organizations. The findings of this project can assist Saudi Arabian policymakers and leadership of public and private sector universities to restructure the higher education sector to prepare students for the jobs of the future and help Saudi Arabia in pursuing sustainability goals.

Under the Vision for Saudi Arabia 2030, the Kingdom aims to increase the contribution of the private sector to its gross domestic product to 65 per cent and increase FDI's share to 5.7 per cent of its GDP. On Joe Biden's recent trip, Saudi Arabia and the US signed 13 investment agreements on the sidelines of US President Joe Biden's visit to the kingdom, as it was reported that the Arab world's biggest economy seeks to attract more foreign direct investment for diversification. Saudi Arabia had also announced more than US\$6.4 billion in investments in future technologies and entrepreneurship that will further secure the Kingdom's position as the MENA region's largest digital economy.

Investing in Egyptian schools is the newest development in the US government's \$1.7bn (EGP 26.7bn) over the past 40 years. The schools will promote innovation and creativity, encourage a culture of entrepreneurship, and connect students to jobs in partnership with the private sector.

"The United States and Egypt are upgrading technical education to meet the needs of the private sector in line with the government of Egypt's education strategy. These six new schools are part of the US government's \$70m 'Workforce Egypt Project' that will prepare 100,000 students for jobs in the private sector in Egypt and globally," said US Ambassador Jonathan R. Cohen.

It is reported that the US support for technical education in Egypt and engagement with the private sector is part of a \$30bn (EGP 471bn) investment that the country has funded in Egypt through USAID since 1978.

Another country that has taken the conversation forward is Morocco which is now building ties with the United Kingdom. North Africa Post reported the two countries sought to build thriving partnerships, including in trade, green finance and education, said the British Minister of State for Foreign Affairs for South and Central Asia, North Africa, the UN and the Commonwealth, Lord Tariq Ahmad. "Our kingdoms are working together to deliver a shared vision of economies that are innovative and focused on building a sustainable future, resilient to the global challenges we all face," Lord Ahmad said in a statement issued when he paid a visit to Morocco.

It is worthy to note here that there is no 'correct' pedagogy for sustainability education, but there is a broad consensus that it requires a positive shift towards active, participative, and experiential learning methods that engage the learner and make a real difference to their understanding, thinking and ability to act. In many areas, it is integrated with mainstream academics wherein students must go ahead and even take exams on it.



The University of Plymouth identified five pedagogic elements that cover a host of pedagogical approaches or methods that staff use to bring these elements into the learning environment. These included

1. Critical reflection – including the more traditional lecture, but also newer approaches such as reflexive accounts, learning journals, and discussion groups.
2. Systemic thinking and analysis – the use of real-world case studies and critical incidents, project-based learning, stimulus activities, and the use of the campus as a learning resource.
3. Participatory learning – with emphasis on group or peer learning, developing dialogue, experiential learning, action research/learning to act, and developing case studies with local community groups and business
4. Thinking creatively for future scenarios – by using role-play, real-world inquiry, futures visioning, problem-based learning, and providing space for emergence.
5. Collaborative learning – including contributions from guest speakers, work-based learning, interdisciplinary/ multidisciplinary working, and collaborative learning and co-inquiry.

The culminating point of collaborative learning can be expanded to include countries across the world to participate in creating awareness of the burning environmental crisis.



The-Sustainable / educationmiddleeas



The-Sustainable-Cityweb / middleeast

It is here that we must recognise that higher education institutions are facing increasing pressure on their mission to provide high-quality, affordable education to students and perform world-class research. While certain countries are at the forefront in the Middle East, there are some which need financial support. Reductions in public funding support and concerns about overall affordability present substantial near-term and longer-term budget challenges for many institutions moreso post-pandemic.

Other countries like Tunisia are still to raise the curve. The World Bank reports: “Just like everywhere else, COVID-19 has adversely affected Tunisia’s economy and the report strongly highlights the need to address longstanding challenges to sustainable growth, including improving the business environment,” said Alexandre Arrobbio, World Bank Country Manager for Tunisia. “To emerge from this crisis, Tunisia needs to adopt decisive reforms to promote private sector development, boost competitiveness and create more jobs, especially for women and youth.”

**“WE WANT EDUCATORS TO
HELP CREATE CHANGE MAKERS
AND STRONG LEADERS”,
RECOMMENDS KATIE ZAWADIEH
OF SKY LIMITED CONSULTING**

Education for Sustainability (EFS) is expounded as a transformative learning process that provides students, teachers, and the school system, with acquiring skills that enable different ways of thinking in order to achieve economic prosperity and produce responsible citizenship while restoring the health of the living systems upon which our lives depend.

It is with this understanding that we at Thirty to Net Zero connected with UAE-based Zawadieh currently working with the Ministry of Education. She comes with a wealth of experience in the field of education converting her passion into her profession. Zawadieh is of the strong conviction that empowered teachers can lead to an empowered young generation of inquisitive minds.

Zawadieh believes that it is important to stimulate the minds of young children to ask the right questions. She works on project management, quality assurance and improvement and evaluation of institutions while advising them on how to improve their performance and suggest ideas for sustainability and more.



Zawadieh further highlights the need to envision the future in a way that supports the sustainability movement within the system and how the UAE has taken huge steps to incorporate sustainability goals in the divisions of its work.

Equipping teachers, educating students, and empowering the world for the Greater Good is at the heart of this inspiring interview.

Q: In your opinion, what are the three positive changes at high school and then university levels that could be implemented to take its leaders towards higher standards across the education industry standards?

A: In the time and era of fast advancement of technology as well as the unprecedented pandemics and wars, we all need to reflect on your question and think of ways to envision as possible, what the future will look like and what are the major needs that will drive markets and businesses which should be cascaded down to enhancements and alignments in the education system at a school and university level. In my opinion, the three key positive changes that could be implemented toward higher standards across the education industry and considered by educators, policymakers and government leaders are:

1. Empowering leaders is now a priority around the world, so we need to equip leadership teams in schools and universities with the right tools to lead in

- this fast-changing world and plan and manage change in their institutions effectively. These leaders need to be able to see further ahead and envision and plan for the future more effectively, aligning these plans with those of the country and finally, cascading these plans down to school and university levels. Leaders should train and empower other leaders and build their capacity. We all need to invest in building strong sustainable leadership teams in all institutions.

- Educators need to be equipped in all educational institutions to teach differently with focused attention on students' identity and character, empowering and coaching them as global citizens to be resilient, to understand themselves better, and their potential, be grounded in love, compassion and empathy. Teachers at all levels need to help students become more service oriented and inspire them to live with purpose and meaning. Empowering them, causing a mindset shift, and understanding that even small acts from the students' side can make a big difference in the lives of people around them. We need students to start asking the question 'how can I use my skills and talents to help others, my community, my school, my university, my country and the country where I live.'

- We want educators to help create change makers and strong leaders, rather than passive consumers and followers. We want them to help students think more critically and creatively to take the next steps boldly in their future. We need students to help serve others and stand in the gap whenever they see needs, to be courageous and bold to take the leap and design innovative solutions that help others and impact the community at large and the world. This is the role of educators in schools and universities.

We need the educational systems to be more agile, to adopt and plan changes smoothly and effectively. If leaders could envision jobs of the future, they would initiate changes in the system which would impact changes in curriculum choices, courses and programs in schools and universities. If we want to prepare students for the future, we want to equip them with the skills and give them better access to the market sooner. We need these institutions to collaborate with community partners and businesses more effectively to equip students, improve their readiness for work and support stronger entry to the marketplace.

Educational institutions need to adopt more interdisciplinary approaches and more project-based real-life applications and consulting assignments connected to real businesses. I believe this will speed up the process of learning, making it impactful to enhance students' readiness levels for the field of work.

Q: Please tell us more about your program and how it takes into account the sustainability goals of the region.

A: The UAE has taken huge steps to incorporate sustainability goals in the divisions of its work. Sustainability goals are incorporated in the different curricula, teaching and institutional evaluation frameworks which are, in turn, raising people's awareness of these goals.

The amazing Expo 2020 gave so many ideas and knowledge about sustainability and how countries are working to meet SDG goals. In my role as a Coach and Consultant, I ask questions to evaluate the standards the institutions are working at to meet the sustainability goals of the region I am in. I ask questions to check the level of understanding from all leaders, teachers and students of these goals and what they have done on their part to contribute to solutions, sharing best practices or models, whenever allowed and possible.





Q: How key is it for today's educators to help their students distinguish between sustainable development education and environmental education as well as make them aware of the importance of problem-based interdisciplinary learning to sustainable development education? How do you see yourself as a coach embodying these principles in your own career?

A: There is some level of awareness among most people of the importance of interdisciplinary learning to sustainable development. Some organizations have realized that the old model is not working, and we need to engage students in the learning process more effectively with real-life scenarios and applications. As a Coach and Consultant, I try to learn and think differently about things and as a result see what learning or knowledge I could share, whenever possible.

In my free time, I volunteer to run projects in other countries. For example, I am working with a Canadian nonprofit that wants to help Indonesia in finding environmental and sustainable solutions to help young farmers and educate them on these innovative solutions. We want to train farmers on a farm and have them implement what they learn in real-life projects and assignments on their own farms. In the process of developing these solutions, our research team looks at other models and ideas implemented in other countries, so we are bringing the knowledge to benefit other countries.

Q: Where do you see the actionable principles of sustainability and carbon neutrality both in the education industry and in an education leader's sphere of work and where is there a possibility of improvement?

A: The education system is changing worldwide and the leaders making these changes realize the need to embed sustainability more in-depth in the curriculum, the evaluation, tests, and exams. Schools, institutions, and students are evaluated for their understanding and asked for evidence of how they implement sustainability solutions in their sphere. There are many opportunities locally and globally, since we are more connected now, to learn from other countries' innovative solutions. People are reaching out to different resources to get educated and inspired with creative projects for sustainability. There is more work to be done for sure.

Educators must find ways to get out of their comfort zone when teaching students and allow more opportunities for them to be creative. Exposing students to needed knowledge and give the space to be creative. If students are switched on and are inspired by what they learn, they will figure out creative solutions to implement them. Coach students to understand their potential and help them understand that every small act they initiate, influences others. If students believed they can make a difference and find purpose and meaning for every day, they will be switched on to find ways to contribute and we will then have our change makers.

Q: Please us some anecdotes of how you have helped in evaluating the performance of education leaders and improving their performance.

A: When evaluating any project or institution as a first step to help them improve and raise their standards, I try to do the evaluation 'with the people' not 'to them'. In this way, they are part of the process and have ample opportunities to share what they have done, and where they see themselves on the journey to improvement which has to be supported by strong evidence. I get to ask questions that support changes in their perspective and help them reflect on their practices deeper and connect 'what they are doing to the 'impact of these actions on outcomes.'

Questions are a powerful tool to shift people's perspectives and impact how they do things. My purpose is to create a positive impact on people's lives and institutions. I am passionate about helping and serving. People see that I am doing it from the heart and that opens them up to receive any advice I share with them for improvement.

At the end of any evaluation, I acknowledge the strengths that I witnessed and share recommendations on how to improve. Because of the daily discussions, leaders are not surprised by what is shared with them. If people understood the 'why' they can figure out the 'how.' In my business, my evaluations helped organizations merge into one, helped others grow and expand, supported organizations in getting accredited and improving their standards, created a quality assurance framework and evaluation tools for large organizations running over 20 programs across different regions, changing systems and processes to be more effective in other institutions, and coached clients how to lead better and change their leadership style.



Q: Please tell us about your journey from that of a coach to an employee and then as an entrepreneur yourself and a book you would recommend to all entrepreneurs.

A: I always reflected deeper on life, purpose and meaning. I always wanted to do more, to help people locally and internationally and use my skills and talents to bring positive change that could inspire others and support communities, whenever possible. I used to work full-time jobs but was looking for freedom and creativity in doing things instead of 9-5 systems. I always felt things could be done differently. That was before the transformation that happened during Covid to the world of work and how it has changed the way we do business. I do not like to be put in a box (I mean working within old traditional organizational models) and I believe I have different skills and experiences that I can use and share widely.

I worked in the education, nonprofit and business field. I have experience and skills in quality assurance and improvement, inspections, project management, coaching and consulting. I support organizations to help them improve their systems, processes and services, empowering them to deliver high-quality outcomes in a client-centred environment. Because I was seeking change and purpose, I reached the point where it became a necessity for me rather than an option. I broke from that fear that holds many people from doing what they really want to do.

I woke up one day and took a leap of faith and decided to quit my full-time job even though I did not have any other opportunity and I did. I just walked away to do my own business. It was inspiring to people around me; they could not believe it. It is always inspiring to see how this encouraged others who did seek change afterwards.

I decided to do my own business and travel internationally and God blessed me with so many projects in different fields. I try to coach and help wherever I go as a way and style of life, I just speak to random people wherever I go and just coach and share what could encourage and inspire them, whenever given the opportunity. I am service oriented, working from the heart in love, from love and for love. This is I believe what our world needs. I am back now to a full-time job, for personal reasons, helping in the education field which is a passion I have.

A book to recommend entrepreneurs to read 'Disrupt you' by Jay Samit. I read it years ago with practical inspiring ideas to encourage entrepreneurs to start their businesses and be change makers.

If you wish other books, 'Start with Why: How Great Leaders Inspire Everyone to Take Action' by Simon Sinek and 'The 5 Levels of Leadership: Proven Steps to Maximize Your Potential' by John Maxwell. The last two books are necessary for entrepreneurs to build their leadership skills.



All Photos Provided By Katie Zawaideh

UNESCO AND ITS IMPACT ON THE SUSTAINABILITY FACTOR IN THE ARAB REGION

The UNESCO's official site states: that Education for sustainable development (ESD) is UNESCO's education sector response to the urgent and dramatic challenges the planet faces. The collective activities of human beings have altered the earth's ecosystems so that our very survival seems in danger because of changes more difficult to reverse every day. The ESD for 2030 roadmap sets out the urgent challenges facing the planet and underlines the implementation of the new Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030) framework, which aims to increase the contribution of education to building a more just and sustainable world.

Multiple programs are currently being innovated and encouraged on these lines funded by UNESCO.



sustainability / Mckinsey

Take the Umm Al Arab School which has been recognised for its efforts. Asma Al Harthi, principal at Umm Al Arab School, said: "We are proud to be recognised for upholding the values of sustainability, especially in the Year of Zayed. Our faculty and all 2,100 students have worked hard to integrate sustainability values into our classrooms, curriculum and community engagement activities. Our student innovators, for example, created the UAE's first recycling centre for schools." And this is just one example.

The American School of Dubai has set an example for others too. Over the past few years, the sustainability program has become integral to both learning and operations at the ASD where awareness of environmental issues has become an increased priority. Their initiatives include a recognition that the world has an interconnected multi-dimensional future that is dependent on their conscious decision-making. They are taught that the future is being made every day.

Sustainability is about generating a critical consciousness regarding our behaviours as consumers and the students at the school are debating climate legislation with equal fervour as they would engage in a debate or sport. They understand the necessity to support the development of students who contribute to a rapidly changing world.

Dr Paul Richards, superintendent at the American School of Dubai, said: "We have always encouraged sustainable habits and innovation by spreading awareness and taking informed action to improve the present and future of our community. As well as improving efficiency and reducing costs, the photovoltaic panels will provide a real-life example of sustainable practice to inspire our students." And Dr Richards is not alone. Every school currently wants to become a harbinger of hope for the cause of sustainability.

According to Elvan Sahin, "Sustainability can be thought of as a paradigm for the sake of a future in which environmental, social and economic aspects are balanced in order to endeavour for improved quality of life. During this process, interaction with people from a different point of view seems to work well in learning more about sustainability."

According to the UNESCO Arab regional education support strategy report on the performance of Arab states in 2021, Despite the many challenges, commendable progress has been made in the field of education. The Arab Region has done best in education when compared with other sectors. Progress in enrolment for instance has been most notable, rising to over 90% from an average of slightly over 60% in the 1970s.

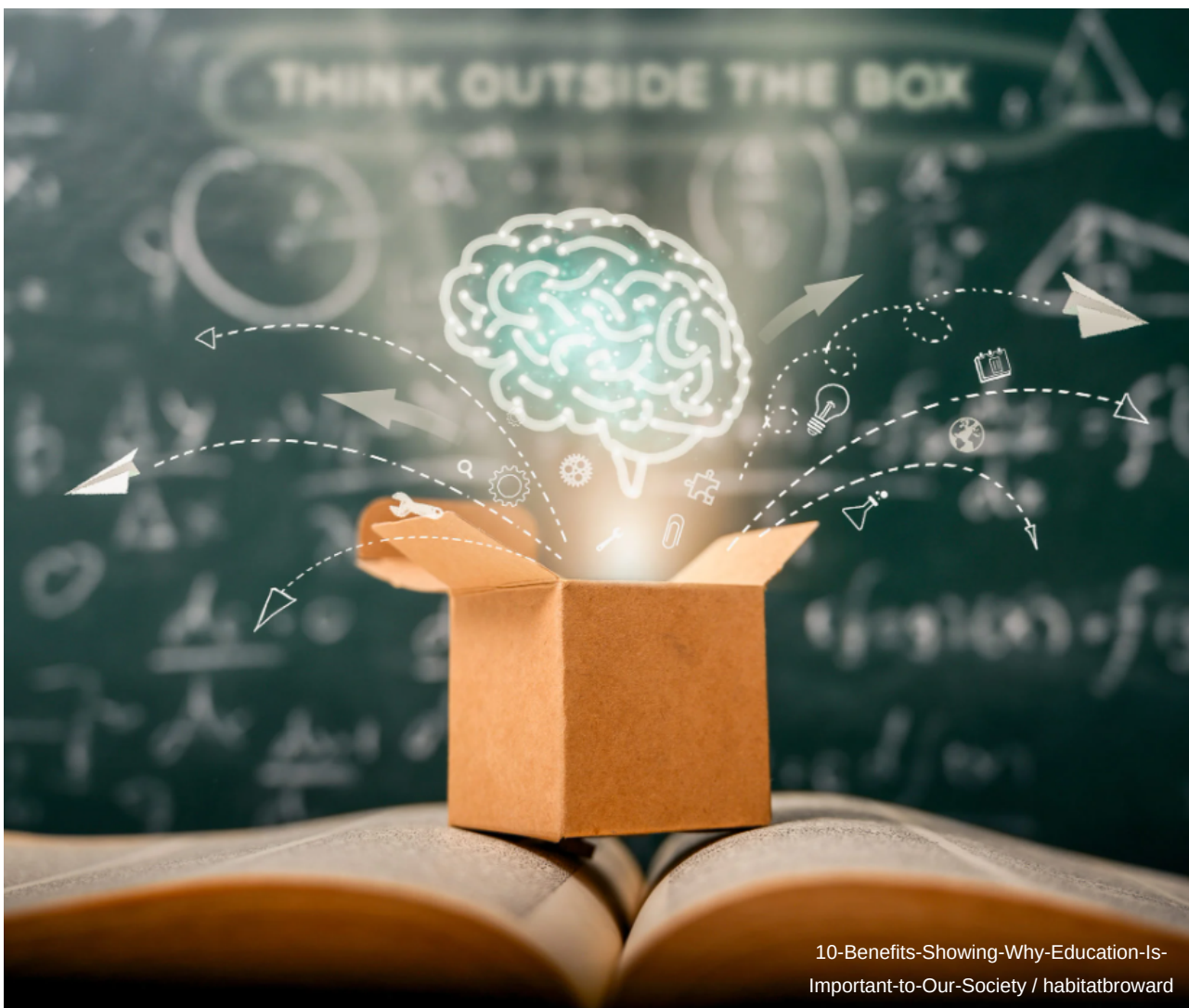


The Quadruple Helix Model of Innovation that has been adopted the world over including in the Middle East captures the process by integrating and overlapping knowledge and technology, forming an aggregate output invested in producing more products and services, innovation, and technology. This means that the extent of technical innovation is directly related to technical education. According to a research report on the Entrepreneurial Rise in the Middle East and North Africa: The Influence of Quadruple Helix on Technological Innovation, “the findings and examples stated in several different MENA regions can boost the economy as various platforms provide digital transformation, encourage culture awareness in schools, encourage youth empowerment, and support tech start-ups. They can drive forward the index of creativity and innovation within entrepreneurs and the general members of society.”

HE Dr Thani bin Ahmed Al Zeyoudi, Minister of Climate Change and Environment while explaining the investment and commitment to include the young generation in the efforts of achieving a sustainable future, said: “Through the Sustainability Champions, organised in cooperation with Expo 2020 Dubai and the Ministry of Education, we aim to educate the UAE youth on the vital significance of sustainable habits and environmental conservation for the future of our country. The programme offers students an opportunity to become real partners and actively participate in developing sustainable solutions.”

Take the GEMS Metropole School which is teaching their students to participate in all phases of soil preparation, sowing, cultivating, harvesting, consuming, and composting, which demonstrates the cyclical nature of organic processes and enriches their appreciation of how gardens can inspire and reward whole communities under their Metro Farm Fresh project. Young Leon McCann says, "I really enjoy visiting the farm, my teacher Mr. Connor teaches us the importance of sustainable food growth and irrigation by using the water systems and crops on the farm as examples it makes the topics much easier to understand. I also enjoy seeing the animals as living in a city we don't get to see many chickens or ducks". The idea of sustainability does not end with waste management or energy efficiency. It must be more holistic.

Stressing the need to make education more holistic, and address how to utilise behavioural attitudes to change cultural stances on waste, recycling and environmental health was on top of the agenda for Hussain bin Ibrahim Al Hammadi, Minister of Education, who stated at a recent UNESCO Conference the need to draft a joint research study between the Ministry of Education and the Ministry of Health and Prevention, with the support of universities, on how to utilise behavioural attitudes to change cultural stances on waste, recycling and environmental health.



10-Benefits-Showing-Why-Education-Is-Important-to-Our-Society / habitatbroward

Ola and Rasha are young adults in Egypt who are working with UNESCO. They are making sustainable schools to bring about a change in smaller towns in the country. The duo say, "In Egypt, the education situation is not very optimistic. There is always a lack of equipment and places for students to study, especially in remote areas. We thought that it is an opportunity to make use of plastics, turning them into treasure, into usable and sustainable constructing materials to build classrooms."

"It is interesting to compare and contrast the different values cultures place upon education. In the European context, education has been enshrined as a right for generations, perversely this on occasion leads to complacency in the mind of parents and children. In Africa and as I have been informed anecdotally in India, this right to education, and the value it provides, is not so enshrined and families consequently place much greater value upon it. The Middle East is particularly interesting as the multinational nature of the region necessitates that a number of education systems (the UK, US, IB, French, et al) thrive alongside each other," observed Timothy Roberts, Principal at Raffles World Academy. Most of the education system thrives on the ability to influence culture and be influenced by it too. It is the change in the synergy between the key stakeholders,

parents, teachers and students that makes all the difference. And hence UNESCO's role in building a uniform platform for all irrespective of race, colour, culture, couture, custom and costume becomes a game-changer, especially in the Arab region.

Education has also become a reason for bilateral ties. Take Lebanon and Qatar for example which have recently come together for various reasons, one of them being education. Qatar's Minister of Education and Higher Education HE Buthaina bint Ali al-Jabr al-Nuaimi, stated that both sides reviewed bilateral ties in the educational field, as well as the scope for enhancing them. The Lebanese minister also discussed the challenges facing the sector in light of the current economic crisis the country faces and said that he met with the Director-General of the Qatar Fund for Development Khalifa bin Jassim al-Kuwari. Halabi went on to affirm that Lebanon is an integral part of the Arab world that is keen on staying on good terms with all Arab countries, particularly in the GCC. Education is a binding force for people and countries.

Organisations like UNESCO are external players that can give the necessary impetus to the sustainable development of the Arab region by reinforcing the role of the SDG's in individual countries and the region as a whole.

No one could have put it better than the Principal of GEMS Wellington, who said, "We believe that if our students are to help build the world of tomorrow then they need to have a moral compass instilled in them that allows them to understand fairness, equity and access for all. We drive this through pillaring the United Nations Sustainable Development Goals and ensuring our students understand the importance of helping others less fortunate than themselves and that any enterprise activity that is undertaken needs to show a benefit for the common good of humanity and support a sustainable and socially driven future."

Sustainability is not just the protection of the environment but the preservation of the human race. While we strive to create industry-ready market leaders imbining in them the need for creating an industry that is pro-environment is of the essence.



GEMS-Wellington-Academy-Al-Khail-WSA / schoolscompared



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“YOUNGSTERS ARE THE CHANGE-MAKERS AND BRAND AMBASSADORS”, SAYS DR FATIMA BEENA, EDUCATOR, ENTREPRENEUR FOUNDER, UPKEN EDUCATION & FACULTY DE MONTFORT UNIVERSITY DUBAI.

Education for Sustainability involves equipping people with skills, capacity, and motivation to plan and manage change towards sustainability within an organization, industry, or community. If an educator sows the seeds of sustainable development among students, its roots are sure to deeply penetrate the society.

Dr Fatima Beena is the founder and CEO of UPken Education and Consultants, she is the recipient of Amity's young researcher award, and the best woman performer in the Academic Leadership Award (International). Currently, she is associated with De Montfort University Dubai Campus as a faculty & Head of Innovation. She has also recently co-authored a newly released book entitled, 'Who moved my Heels'.

In this exclusive interview, Dr Fatima Beena shares her passion for sustainability and initiatives that she has been actively pioneering and encouraging.

Q: Please tell us about your journey as an entrepreneur and how sustainability in many ways has become entrenched into that journey.

A: Initially I was not into academics, working as a cost accountant and as a consultant with a chartered accountancy firm in India instead. While helping a family friend in establishing classes for a higher grade for their campus to permit students for a new stream, I entered academics and realized that I enjoyed teaching and interacting with students and started my career in education in 2000. In 2005, I enrolled for my Ph.D. program to pursue a career in education and soon entered professional teaching. I started teaching specialization courses at postgraduate and undergraduate level alongside multiple streams of Business Management Programs.

Today, I have two registered companies including a Sec 25 Company which is a not-for-profit organization. I realized that there's a lot to be given back to society in terms of educating children and have been teaching as an educator and working as an entrepreneur since 2010 driven by the same objective to give it back to the society in whatever little way I can.

Q: The recent programs that were conducted by the DMU alongside the UN's principle for responsible management education, on educating future leaders, to focus on all of the UN's 17 Sustainable Development Goals, addressing issues like hunger, poverty, equality, all of this were taken into account, could you put this into perspective by telling us about the University's own goals and of course, your work at the DMU program and how it all takes the sustainability goal forward in this region.

A: Earlier in March, DMU organized an international conference with the UNPRME UAE chapter. That entire conference revolved around sustainability goals, and we focused on and tried to cover and capture the list of all the 17 Sustainability goals, which the UN has proposed. We also have established the sustainability hub at the DMU Dubai Campus. So, we have already a full-fledged established hub and we have been working on one of the projects for which we have received funding - the green wall project- along with the students.

We also have undergone a carbon literacy program that DMU offers to the faculties as well as the students. Now we can say that we are a certified group who are aware and educated about sustainability and sustainability issues. We also have sustainability teach weeks. Every semester two weeks are completely dedicated to spreading awareness when talking about sustainability goals. And all these sustainability agendas are embedded into the topics we teach in different modules, which makes it more relevant for the students to understand and imbibe.





Q: When you see the actionable principles of sustainability, and carbon neutrality, especially in the education industry, where do you think that they can fall short? And how can they possibly improve the awareness, the ideas, and the agenda around this?

A: Sustainability is not a one-time discussion and must be embedded in your lifestyle. We must make sure that we are talking about sustainability at all levels. As a faculty and as an informed, educated, and conscious citizen, I also talk about sustainability and the sustainability issues with my family, my friends, and people whom I can influence. Fortunately, because of my profession, I do get a chance to speak on different platforms to diverse groups. I see this as an opportunity to educate more and more people other than my students.

A lot of people think that sustainability is something to be discussed and taken care of by the government or top-level officials' and it is their responsibility, and they have nothing to do with it. The key is to make people aware of their responsibility and their contribution. It is very much doable. You must encourage and motivate them to do simple things. A simple example would be that if you're leaving a room, you make sure that all the lights and fans and electric appliances are switched off. That's also a contribution and can make a lot of difference.

Even when the performance rating report is sent to consumers by DEWA, people just scroll without understanding its purpose of it. DEWA is doing this to make us educated and inform us about our responsibility and contribution to the environment and society. It is very important to make individuals realize that they must embrace and be very conscious of using the resources they're using because nothing comes for free. We must spread awareness, educate people, and make them conscious not by telling them scary stories about what will the effect of it their lives. Instead, we must make them understand the advantages of doing small things that can help us building a better world to live.

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I'm very conscious about using local products. Why consume packed foods when there are local producers available who will also help us in reducing the carbon footprint? Be conscious about getting into sustainable fashion rather than fast fashion. People must realize that they should be very conscious about the way they dress up and their wardrobes. Not only this, but you should also use sustainable clothes and biodegradable packaging materials. So, these are small things that everybody can do and that's how we will achieve the sustainability goals proposed by the UN. Otherwise, I don't see it happening anytime soon.

Q: When it comes to the challenges, especially when it comes to the youth in the Middle East, what do you think is the single greatest challenge towards a climate-forward approach? Have you ever come across a single common problem while dealing with something as important as sustainability?

A: I see a lot of youngsters complaining about many things, but the bottom line is they don't realize that they also have a role to play. We have been complaining about temperature rise, human-induced climate change, urban air pollution, extreme weather conditions, and price hikes of almost all necessities apart from other things. I think the pandemic was a blessing in disguise which also made people realize that there are so many things that they need to do. During the pandemic, back in India, my family started growing a lot of vegetables and fruits in their own homes because it was very challenging to get fresh eatables during the pandemic. People became health conscious and started working on their immunity. There was a complete halt on air & road transport which reduced the air pollution. People were adjusting with lesser resources available which helped in reducing the carbon footprint in so many ways.

Youngsters must realize that they are the change-makers, and they are the torch bearers of change, they must take the lead. I always tell my students to use stairs rather than taking the lift and commute to the campus with the help of carpooling rather than driving their own vehicles. Sometimes they are happy to be ignorant about problems because I think they find it very difficult to face them. So, we must encourage them, motivate them, and constantly speak to them. That's the way forward!

Q: Tell us either about a city or a book that has left quite an impression on you. And of course, please tell us a little bit about your own book.

A: The book which I am currently reading is authored by a dear friend of mine, Farah Naz, entitled, The Net Zero City. The way she presents the idea of sustainability and carbon neutrality is very impressive.

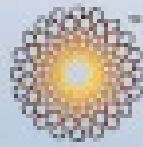
As far as cities are concerned, when I was on a trip to Europe, I really loved Amsterdam. It was very exciting and intriguing to see the use of bicycles there. The roads are so clean, without any congestion or traffic because most of the people were using bicycles. I'm very happy to share the example of the UAE also because the way they are taking sustainability into account and making efforts to build a better place is also very commendable. Sustainability is given utmost importance in almost every future ambitious projects. I am sure in the coming 5-10 years UAE will be an example for the rest of the world in terms of reducing carbon footprint and achieving sustainability agenda.

'Who moved my heels' is very close to my heart. I co-authored this book with 18 different authors, including me. It is such a vibrant collection of real-life journeys of these 18 alpha female authors.

Each one of them have narrated about the personal and professional lives and, their entrepreneurial journey. The challenges they faced over a period when they were engaged in their diverse career paths and in their personal lives. The transformation and transition from a professional to an entrepreneur was very intriguing. They have not only shared their life journey but also, their life lessons. My chapter in the book is titled, 'My Life My Rules.' Whatever challenges I have faced have made me what I am today. So, once you overcome a challenge and you are successful in dealing with it in your own way, you make it a rule that every time I am exposed to a similar situation, I know how to deal with it. In a patriarchal society, it's not easy for a female to break all the barriers and shackles and come out victorious and start off on their own. So, I think hats off to all my co-authors. I'm happy that we did that project that brought out the best version of ourselves.



All Photos Provided By Fatima Beena



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FROM 18TH CENTURY ROUSSEAU TO THE 20TH CENTURY ARAB UNION - ONE CALL: GO SUSTAINABLE

Influential modern philosopher Jean-Jacques Rousseau tried to focus on the importance of education in the environmental field as early as the 18th century which went down as the first interest of environmental education. Later the Swiss Naturalist Louis Agassiz gave a clarion call to understand and investigate and nature. In the 1930s it was Sir Patrick Geddes, a Scottish botanist who participated in the early relation between the two words "Education" and "Environment" and from here came the idea of Environmental Education.

Should one look at the latest demographic reports, it is clear that the Middle East is among the youngest regions in the world with approximately 50% of its population under the age of 25. Arab youth hold the potential to make a considerable contribution to the development of the region.

The fact is that the Arab youth are passionate and have a proven desire for active civic participation but there is also the fact that structural challenges do impede their ability to partake in social and environmental development. Challenges that were identified by recent research included a dearth of young adult partnerships, a lack of consistent opportunities, and sadly the predominant view that young people are only part of the problem rather than the solution. Youth participation is restricted in the environmental front, given that the environmental agenda is only recently gained considerable momentum.

The Sustainability Advisory Group in the MENA region undertook a research study whose conclusions showed that business leaders were also guilty in some cases for their complacency around critical environmental issues facing the region. For instance, many business leaders continue to rate water conservation, climate change, and waste management as unimportant. The SAC[PS1] noted, "Our research suggests that there seems to be a growth in environmental consciousness from the 'bottom-up' - the youth demographic. We believe this growing consciousness will shape the discourse of environmental issues in the region in the coming years."

To bring the focus on energy to establish energy efficiency in the region it is essential that students are made aware at a young age that energy is an expense just like raw material or human labour. To achieve a substantial reduction in energy bills by implementing simple housekeeping measures would need adults to pave the way and start a chain cycle. Reduction and control of energy usage is vital because it then reduces cost and should one work on energy efficiency at a bare minimum household level or even at an organisational level we can save up to 20% on their fuel cost. Efficient use of energy also reduces carbon emissions adverse environmental effects. Is it possible, Bint Al Shatee School in Umm Al Quwain has managed to cut their electricity use by 18.8%. Initiatives like the EcoSchools program help incentivising student efforts by giving them due recognition.

Ecoschools is the “largest global sustainable schools programme – it starts in the classroom and expands to the community by engaging the next generation in action-based learning.” Take their FEE Affordable and Clean Energy Initiative, “The FEE EcoCampus programme promotes energy-saving initiatives and innovative solutions to reduce energy consumption within the universities, within students’ and teachers’ homes, as well as within the wider community.” All members of educational institutions work together to increase the awareness of energy issues and leverage energy efficiency.



At a University level, students with architecture, engineering, economics, or management background can be actively involved in this process and learn all that can be done which includes changing the institutional structure on campus and helping create new clean energy solutions. A sustainable transport policy which is facilitated by the requisite infrastructure could further encourage cycling, public transportation or electrical charging stations.” Reducing a school, college or carbon footprint helps build a ‘green’ image thereby generating good business opportunities; and reduces the risk of energy price fluctuations and supply shortages.

Another key area that needs to be addressed on an urgent basis is waste management. Students are given punchlines, Waste not, want not or Wasting Food is Unhealthy for the Planet. But what happens when the actual item is in the trash? is a point that not many find worthy of a discussion. We are so invested in the prevention of waste that we forget to invest our time on the reduce and recycle options.

A public opinion survey that was carried out by the Arab Forum for Environment and Development in 22 Arab countries revealed that a vast majority, exceeding 60 percent, believed that the environment has deteriorated in their countries over the last 10 years. An even bigger majority amounting to 95 percent thought that their country is not doing enough to tackle environmental challenges. The questionnaire that gained attention when it was circulated on the internet in cooperation with Arab media outlets and conducted on a self-completion basis, attracted whopping 20,460 responses from across the diaspora.

When the Ideation centre surveyed the youth in the MENA region about environmentally conscious behavior, they found that in the GCC, Levant and North Africa there was an increasing concern on issues of water conservation, energy saving and recycling. Water conservation is seen as the most pressing issue. Most countries in the region suffer from severe water shortages (just 616 cubic meters of renewable internal freshwater resources per capita for the MENA region compared with the global average of 6,266). It was recorded further that “Recycling is another environmentally conscious behavior starting to take shape among this demographic. Surprisingly, fewer youth were likely to recycle across all markets. In fact, the majority indicated that they would do so only 'if it were practical!'.” According to the researchers, this is a crucial finding for policy makers, environmentalists and educators alike. But there is hope. Al Najah School an all-girls school in Ras Al Khaimah grew popular when they cut 68.9% of their water use.

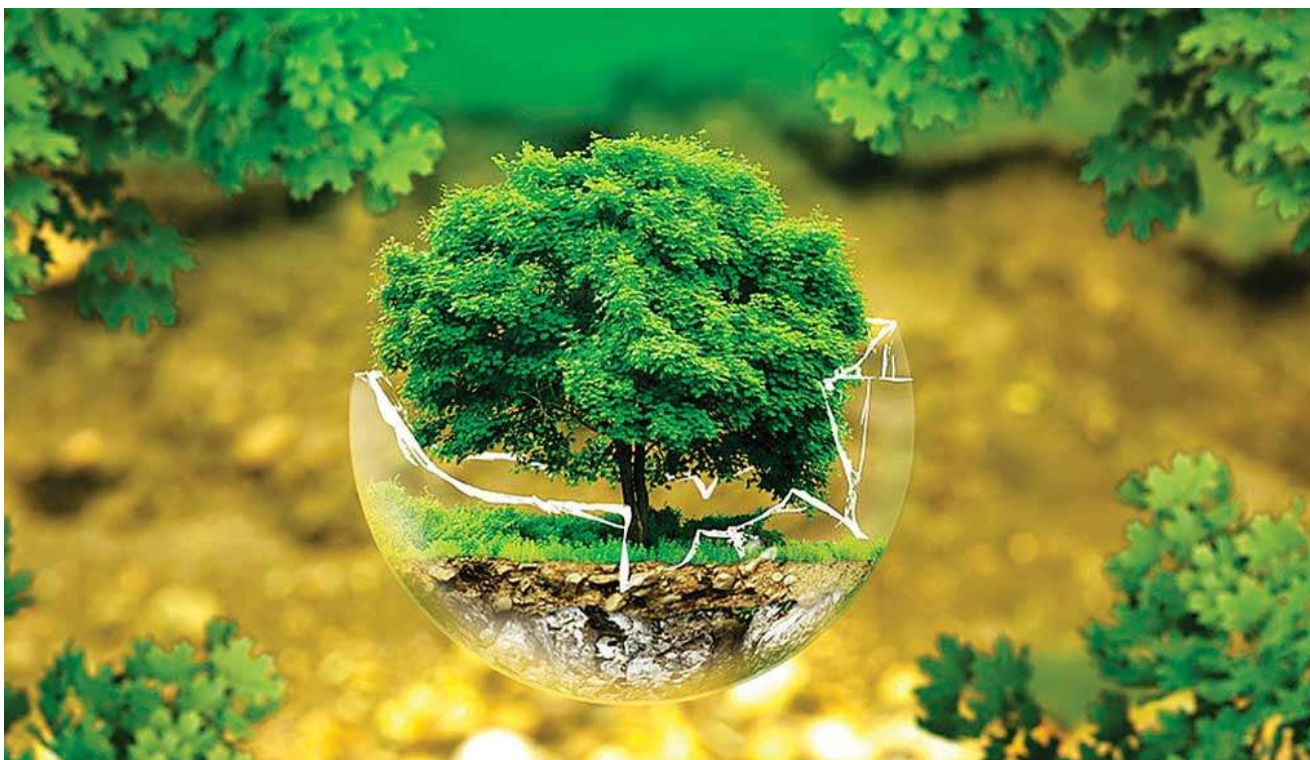
How does an environmentally conscious behaviour gain widespread acceptance and momentum in a world where young people are addicted to multiple distractions in the form of phones, laptops and gadgets? The answer is in the question. Instead of prioritising climate crisis and initiatives around that, private companies inevitably invest in ads that are consumer-conscious, brand-friendly but not environmentally sound all the time.

Perhaps if the government invested in the creation and promotion of this fundamental awareness it would work well. Sustainable development is one aspect of cultural development. According to Dina O Fadi from the University of Bath in her Working Paper Series on How might Education Policy in the United Arab Emirates (UAE) support Education for Sustainable Development programme, For sustainability to be achieved it has to become part of the greater culture. To do so people need to be educated, as education leads to change in behaviour, which result in new, positive habits.

In the UK, a report was published by the Council for Environmental Education which defined ESD as follows: "Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both globally and locally, that will improve the quality of life now and without damaging the planet for the future." Implementing this thought into practice is Dr. Saad Al Omari, an ecologist and the founder of Arbor School, Dubai who describes this understanding as ecological literacy. In conversation with the National, commenting on eco-literacy Dr. Omari said, It works hand in hand with his other two underlying principles: sustainability - "we're not just talking about recycling or solar panels," he explains, "but all the systems we understand, including social, political, economic, personal, ethical and moral sustainability" - and environmental justice - "how humans treat each other under the aegis of the environment".

Saad Omari has also invited Emirates Bio Farm to set up a commercial-scale vegetable farm in the garden, and also welcomes artists-in-residence who work with the students on-ground on new creative projects each term.

In many ways, the students must adopt and adapt methods, ideas, and even basic practices that support sustainable development.



Environment / dnaindia

“GRETA THUNBERG IS MY ROLE MODEL”, SAYS RITIKA ANAND, PRINCIPAL, DEIRA PRIVATE SCHOOL

When parents, teachers, and students are introduced to sustainability education, one realizes that it is future-oriented, focused on preserving the environment and creating a more ecologically and socially-just world through informed action. When we indulge in collective action that supports more sustainable patterns of living and require consideration of environmental, social, cultural, and economic systems and their interdependence, we prepare our society and children for a better life and future.

It is along these lines that we got in touch with Dr. Ritika Anand, Principal of the Deira Private School. Dr. Anand is a dynamic professional with over fourteen years of experience in various leadership roles in established British Curriculum schools in Dubai where she provided an inspiring learning experience through inclusive, innovative, and transformational leadership.

In this exclusive with Thirty to Net Zero, Dr. Anand delineates the continuing efforts of the school and students to create an environment that is eco-friendly while continuously improving educational standards in line with the Nation’s and school’s aspirations and its priorities aligned to International standards and best practices in all phases of the school.

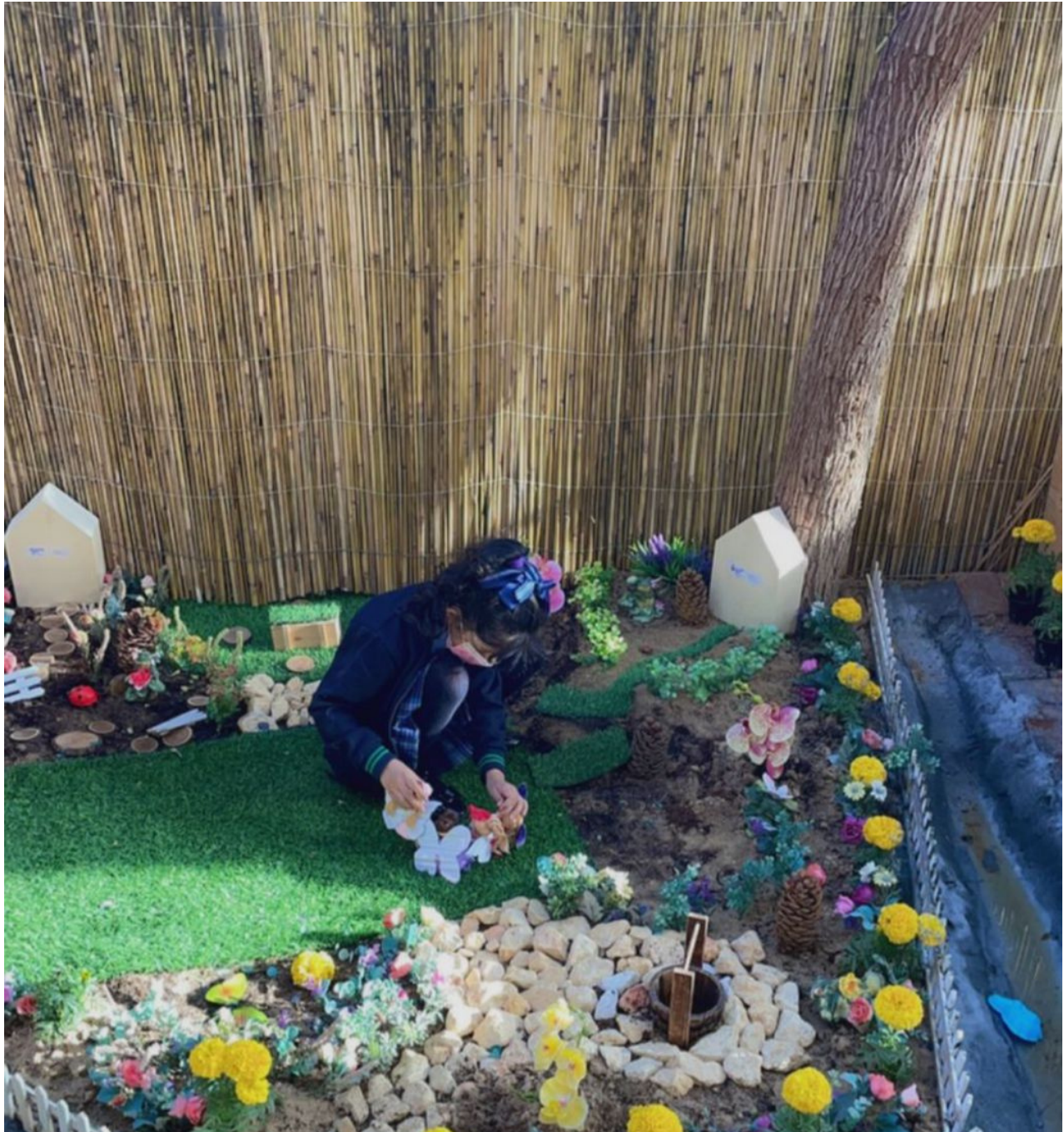
Read on to learn more...

Q: How does your school influence other schools on the path of sustainable development? Do you believe in ‘catch ‘em young?’

A: Our school has an active social media page (Instagram, Facebook) where all activities are shared to raise awareness. A couple of other schools and parents of young children also follow our official page. The school takes an active part in EEG campaigns, and students continue to raise awareness in nearby compounds by collecting empty cans and used papers and involving themselves in beach cleanups.

Q: What does sustainability mean in educational contexts and what different perspectives on it exist?

A: Sustainability Education is frequently referred to as Education for Sustainable Development (ESD), which was defined by UNESCO in 2014 as follows: "Education for Sustainable Development enables every individual to acquire the required information, skills, attitudes, and values to design a sustainable future. The three fundamental pillars of sustainability are economic, environmental, and social. Informally, these three pillars are known as people, planet, and profits. We at Deira Private School have taken into consideration these 3 Fundamental pillars and have developed sustainable premises through efficient use of resources like paper, electricity, and water.



The students have built a deeper understanding of UN sustainability goals. Healthy living is coherently and intrinsically built into and promoted in all aspects of school life through assemblies focusing on a healthy lifestyle, good home/study routines, good use of social media and device time, PE, cross-curricular links, and student-led Wellbeing club.

Meals and tiffin snacks provided by the parents are consistent with the school's policy on the promotion of healthy choices. The school provides detailed advice to the parents about our students' food choices. The school offers a broad and regular programme for physical education and sport to promote healthy living with morning exercise, a brain gym, extensive sports days, and sports competitions for students, parents, and even staff.

Q: How can we consider cultural issues together with sustainability for an inclusive perspective?

A: Our children inhabit a world that is interconnected, diverse, and rapidly changing. Globally, emerging economic, digital, cultural, demographic, and environmental forces are altering the lives of young people and increasing their daily international contacts. At DePS we connect our students to the world by embracing the UN global goals for a sustainable future across all phases to find the solution to the problem within the school, community, and country enhancing students' leadership, decision making, and entrepreneurship skills.

At DePS we pride ourselves on developing the child holistically and living up to our motto "ad vitam paramus". Our introduction of attitudes and attributes has resulted in a very balanced programme. We promote tolerance through raising awareness of celebrations in different world cultures. (e.g. Christmas, Diwali, etc.).

Q: Do share some of the activities that your school is involved in that will help younger students to understand the value and importance of sustainability? A utilitarian concept of education is drawn based on future employability, which is accompanied by the rise of the competency model inspired by the enterprise. How can schools inspire young people to get involved in environmental issues?

A: Embedding the UN global goals for a sustainable future across all phases to find the solution to the problem within the school, community, and country enhancing students' leadership, decision making, and entrepreneurship skills are at the core of our objectives. Our students have volunteered for various environmental campaigns like the beach clean-up, can-collection drive, newspaper collection drive (EEG), the planting of Ghaf trees (EEG), the DEWA Sustainability Workshop, Earth Hour session, Innovation session, and the National Environment Day webinar.

Deira Private School students are very active and care for their environment. Our students inaugurated 'The Forest School' and engaged in the 'Grow Your Own Food' programme at school. Our young students of EYFS participated in a Trashion show in which they wore dresses made from Trash. Forest garden – Grow your own food. They have also participated in the Paper Walk apart from various panel discussions.





All these activities have made children more aware of their natural surroundings, and students were able to understand how our actions affect the well-being of our local and global environments. Students have been introduced to 3 R's during lessons, as they attended a number of workshops.

Q: How do we introduce critical thinking in environmental education when it comes to students?

A: Students are given time to conduct research so that they can find out for themselves the existing environmental issues locally and globally. Teachers allow them to use analogies to explain their understanding and participate in role plays to share their perspectives.

The lessons or discussions on any sustaining environmental issue start with BIG Questions which helps in promoting interaction among students as it is open-ended, allows reflection time, and students use real-life understanding and the evaluation of problems to answer. It allows critical thinking practice and reflection. Students make their own choices, evaluations, and judgments. Students work on several projects in which they represent their thinking skills while reflecting on the ongoing environmental issues as they have in the Aquatic Project, Project Wild, Project Learning Tree, Class, Science-Technology-Society: Preparing for Tomorrow's World, and SuperSaver Investigators.

Q: As an educator which environmentalist would you say is your role model?

A: Greta Thunberg is my role model. As a young girl, she took it upon herself to raise her own awareness and that of the world and question and challenge governments, lawmakers, and organizations for the betterment of the environment.

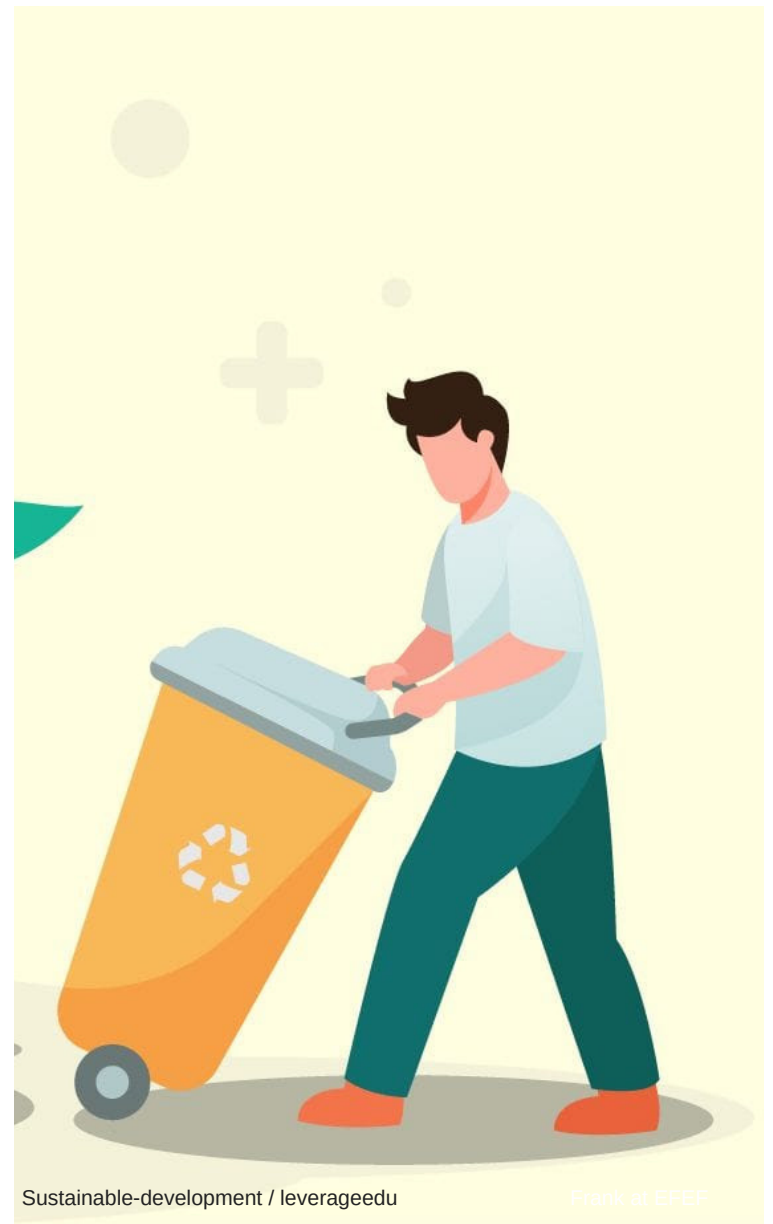
All Photos Provided By Ritika Anand

THE POWER OF DESIGN THINKING TRANSFORMS THE ENVIRONMENT AND EDUCATION THROUGH INTEGRATED LEARNING

Nelson Mandela once noted, “Education is the most powerful weapon which you can use to change the world.” Considering we live in a rapidly evolving world; students need to be adaptable and flexible to achieve sustainability. They need to be prepared to face situations that are difficult to comprehend, tricky to solve but critical for survival. Enter, Design Thinking.

Design Thinking is a tool that can be integrated as a key component in Education for Sustainability which is critical to individuals, governments, and industries as they seek to find solutions for sustainable development. Education is a catalyst that educators use to impart knowledge and skills to their students to help them become critical thinkers, analysts, and capable collaborators by solving complex social challenges.

Dr. Wafi Dawood, CEO of the Strategy & Planning Sector at KHDA famously commented, “Since it started in 2018, the Rating of International Higher Education Institutions in Dubai has given students and their parents the information and data they need to make confident decisions about their future.”



Sustainable-development / leverageedu

Frank at EFEF

When Design thinking is made a critical element of the learning process, the higher education institutions that are battling it out to be the best will automatically have an edge over their competitors with the help of this skill.

There is an urgent need for Education for Sustainability (EfS) as a transformative learning approach that promotes higher-order thinking skills. It is the key to unlocking economic prosperity and producing responsible citizenship while restoring the rapidly degrading living systems upon which our lives depend. Design thinking calls for combining creative and analytical approaches to look at creative collaboration across disciplines. The first step which is the Observation-inspiration phase allows for students to gain an in-depth understanding of peoples' needs and could be used to develop their social skills and empathy. The Synthesis stage would call upon the use of their critical thinking and ability to summarize.

The process of design thinking draws on methods from engineering, and design, and fuses them with ideas from the arts, social sciences, and the business world. Sustainability on the other hand is all about futuristic thinking where one makes a conscious decision to prevent the depletion of natural resources, increase carbon footprints and promote decarbonisation and net-neutrality.

Mezirow defined transformative learning as: "a process by which we transform our taken-for-granted frames of reference...to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and options that will prove more true or justified to guide action."

As a creative and analytical approach, design thinking is an amalgam of concepts in engineering, design, the arts, social sciences, and business.

Design thinking is influencing and impacting "collective intelligence", whereby core consideration is given to the human being and behaviours and needs, wherein creative discussions challenges previously suggested solutions.

Imparting knowledge of design-thinking to students who are adaptable to different situations enables them to be well-trained experts who can solve complex challenges. Dr. Keneilwe Munyai from the University of Cape Town states, "Design Thinking requires a shift in the mindset from working in silos to an appreciation of the power of teams and the diversity that the teams offer in terms of worldview, cultural perspective, and education. Design thinking is action-oriented in order for teams to fail fast and learn quickly from their mistakes."

Training students to think critically means giving them the freedom to think independently and out of the box. The American University of Cairo recently performed some activities on these lines, the most prominent being the Mountain View Design Thinking Challenge. This Design Thinking Immersive Workshop was designed to expose participants to the creative problem-solving innovation framework; where students tackle a real-life challenge presented by an industry partner. AUC Faculty coaches led this innovation challenge. The benefit of using the environment to help students clarify their ideas and thoughts not just around problem-solving in terms of business but also the environment itself.

Should we take a look at other countries adopting design thinking to promote sustainability, Dr. Munyai's thoughts come to mind,

“Originating in design, but capable of being applied across a broad range of disciplines, design thinking brings a disruptive, game-changing potential to ways of working that have become routine and contribute to some of the challenges that face society. While the emergence of the concept of sustainability is based on the realisation that the earth’s resources are not limitless.

“ADU’s recently revamped global innovation strategy focuses on providing every single student with the skills, knowledge, and proclivity to use evolving technologies and digital toolkits to create state-of-the-art solutions for business, manufacturing, and service enterprises across the economic spectrum. We are actively engaged in ensuring, for example, that every undergraduate at ADU, regardless of their major, has a full grounding in the principles and applications of Artificial Intelligence, so that our graduates can be counted on to use AI in resolving problems large and small that they confront in everyday life in the workplace,” says Professor Thomas Glas-Hochstettler, Provost, Abu Dhabi University.

Another inspiring asset for the Middle East is the Dubai Institute of Design and Innovation which proudly proclaims, “DIDI prepares students to effectively respond to a rapidly changing world with transferable skills that are cross-disciplinary and problem-solving by design.” Both divergent and convergent in nature, the process of design thinking is primarily centered on human needs. Design thinking does not work in a logical linear approach, since the attention of the problem solvers flows between the problem space and the solution space, and in this case, given the environmental issues and complexities around it, out-of-the-box thinking is a need more than a luxury.

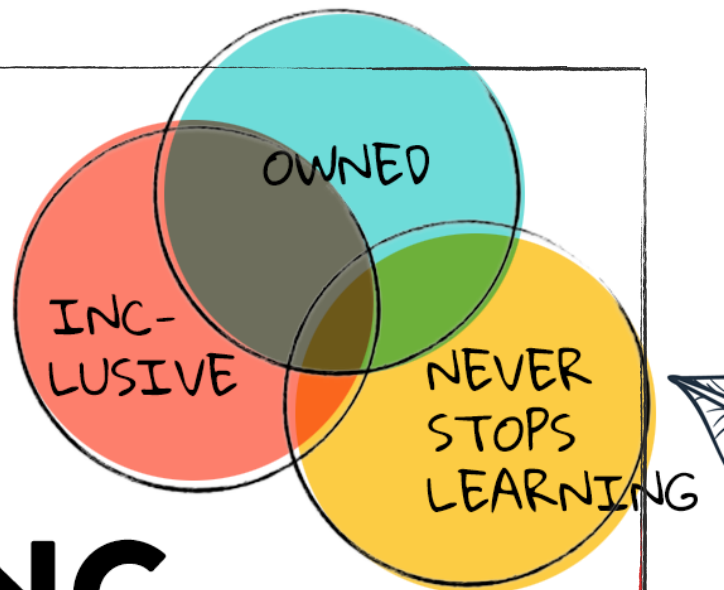
Should one take a look at a simple diagram of design thinking you will observe that design thinking much like sustainability has a circular pattern of working. It gives space for ideas and expands according to the need or circumstance.



Sustainable-development / leverageedu

Design Thinking works if it's not bought, but owned by the organization. If it includes the whole team as designers, design is a way of thinking, not a role. And if it never stops learning from the direct interactions with its customers and environment.

WHEN DESIGN THINKING WORKS



When reflecting on key environmental issues it is imperative to engage with more ideas and seek long-term solutions rather than short term quick fixes. Students must obtain a cultural and philosophical understanding of the role of design in sustainability through conceptual and practice-based study. With real-world experiences, they stand to gain when it comes to environmental stability. The trade-off here is that too many ideas do have the potential to dilute focus and resources. To manage this tension, innovators must be willing to let go of the unwanted ideas that could prove an impediment rather than a solution.

Should we take a global example we see that adolescents in Bhutan were concerned about the muddy, steep and slippery slopes they used to get to school. Through the implementation of Design for Change, the students brought their parents and community together to clean the thoroughfare and surround it with a bamboo safety fence. This is the power of design thinking.

Should we put this into perspective and replace all the business elements with students, educators, and management we still received the same answer: Innovations can be developed to answer real-world problems through real-world experiments.

To conclude, should our curricula engage in design thinking the users of solutions couched in design thinking would no longer be limited to solutions solely from a human perspective since these solutions would automatically benefit the environment from animals, plants, water, soil, and the air giving us more environmentally conscious decision-makers to inspire the middle east and the world.

SUSTAINABILITY EDUCATION IS CRITICAL TO MITIGATING ENVIRONMENTAL DAMAGE



According to Plan International, a survey of 37 countries was conducted where 86% of respondents reported they did not get enough information about climate change, nearly half said they did not know anything about the Paris Agreement, and only 20% learned about climate activism in school.

Due to similar statistics, education is sometimes referred to as the neglected child of the climate movement. Perhaps that is because climate change is an emergency that needs immediate solutions whereas education is often seen as too slow where a lot of time is needed to see results. Time we, in fact, may not have.

On the other hand, climate-related problems and challenges aren't going anywhere. As noted by HE Daryll Matthew, Minister of Education, Sports and Creative Industries, Antigua and Barbuda at the RewirEd Summit, even if we find a new technology today that would completely eliminate any more carbon from reaching the atmosphere, we will still need time to remove all the excess carbon that is already there and deal with the problems already created by it. In other words, though we need urgent solutions we also need long-term ones. Not only would we need to deal with the consequences of today, but we need to also find new ways of doing things that will not recreate these problems once again.

To remedy this dilemma, we need both long-term education programmes as well as programmes that are designed to deal with the urgency of the situation. Sustainability in Education or as it is more commonly known, Education for Sustainable Development (ESD), is an educational approach that aims to raise awareness and build capabilities among students and the community at large in sustainability issues.

We ought to look at short courses and programmes as a way to educate people quickly not only about climate but more importantly to reskill people to be able to adapt and work in jobs that are needed. “Something unique is happening to the labour market”, says Stefano Colli-Lanzi, Chief Executive and founder of human resources company GI Group Holding. “The speed of this revolution is much faster than the school systems and the ability of the companies to follow these trends. We need to change the actors who are responsible for this upskilling process.”

The article goes on to analyse the shifts happening in the education sphere, with boot camps and short courses being preferred for adult education to reskill and upskill adults quickly so they could re-join the workforce, with the UK government now looking to shift the default mode of adult learning from 3-year degrees to what it calls modular learning. The article also references Singapore’s SkillsFuture programme which was established in 2015 and focuses on continuing education and links all streams of education under 1 umbrella increasing the percentage of adults participating in continuing education in the country from 30 to 48%.

Closer to home, we find that the MENA region is one of the youngest regions in the world with nearly half the population aged below 24 years. Youth unemployment rates (15-24 years) in MENA are also the highest in the world were close to one-third of youth in North Africa and more than one out of five youth in the Arab States are estimated to be unemployed as of 2018.

The education system in the region needs a major overhaul in order to upskill and reskill its youth quickly. The MENA region desperately needs to look at models similar to the ones adopted in the UK and Singapore to help bridge the skills gap and create employment opportunities.

In a region characterized by political turmoil and instability, climate change impacts and poor environmental practices further exacerbate the problems faced. For example, in 2021 Syria faced the worst drought in over 70 years. In a country already weakened by 10 years of conflict with agricultural infrastructure destroyed in many parts, this drought has put a further strain on people. People feared that the drought may lead to further migration and socioeconomic tensions.

Farmers need education and training to enable them to grow food under such conditions or to reskill youth into other professions. Understanding climate change leads to a better ability to adapt agricultural practices, react to extreme weather events, and understand nutrition. “Education can create virtuous circles, ignorance vicious ones” according to the Economist’s article Climate Change is harder on less educated people.

A public opinion survey carried out by the Arab Forum for Environment and Development in 22 Arab countries revealed that a vast majority, exceeding 60 percent, believe that the environment has deteriorated in their countries over the last 10 years. This shows that young Arabs are aware of climate and sustainability issues, though this may be attributed more to their lived experiences than to the education system.

In Lebanon for example, due to electricity shortages and power cuts, people are now turning to solar energy in a “desperate search for a long-term fuel-free sustainable energy source” according to Chihab Merhi, a mechanical engineer specializing in sustainable energy.

This trend reflects a critical component of renewable energy. In the past, energy has typically been supplied through large, often state-owned, energy companies. Renewable, and particularly solar energy, offers democratization of energy which means that new smaller players could enter this market, stated Samah Elsayed, Programme Officer – Renewable Energy Education and Skills, International Renewable Energy Agency (IRENA) at the RewirEd Summit. This trend results in a need for entrepreneurship skills and large-scale skilling related to the entire energy ecosystem from vocational to professional development programs that are needed as more renewable energy jobs become available and fewer fossil fuel-related jobs are created.

The renewable energy sector is not alone in this trend. The skills needed are largely related to climate change and sustainability as the only hope we have for the future is for the future to be green. It is a paradigm shift and the only way, not forward, but the only way to survival. According to the United Nations Environment Programme (UNEP), “a green economy is defined as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income is driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.”

The green economy and the jobs created by it are not only those that could clearly be seen as green such as renewable energy or ESG but almost all digital jobs would also be considered seeing that the digitalization of services is a much more environmentally friendly alternative to traditional services.

Despite this obvious skill gap, high unemployment, and desperate need for green alternatives, the MENA region scored below the world average in the Education International Climate Change Education Ambition Report Card, which is a tool developed to measure the level of ambition of countries on climate education and the extent to which they prioritise education as a tool for climate action.

The situation is not all bleak though with some key players guiding the way for a greener and more sustainable MENA. The UAE Ministry of Climate Change and Environment already runs 2 initiatives that integrate sustainability in the UAE’s school curriculum, Sustainable Schools and Our Generations initiatives, which are designed to provide students with ample opportunities to have a

strong environmental consciousness and eco-friendly culture. Many other non-profits, NGOs, and international organizations are also taking a lead on environmental education in the region with a total of around 312 organizations across the region.

In summary, we do not only need education for sustainability to be able to adapt to the problems caused today or to find creative ways to mitigate further environmental damage; but rather that education must evolve drastically today to be able to bring upcoming generations that will not find themselves graduating from a system that is completely disconnected from the reality that they will find themselves in. Similar to Singapore, all these different education pathways need to be developed and linked together to provide their people with an easier way to navigate and a way to continuously learn, upskill and reskill themselves.

In addition to those points, there are also 5 key points related to the Middle East in specific. Education and specifically sustainability education is critical as it is also deeply connected to other extremely important issues globally and in the MENA region in particular.

1. Language: the climate discourse has been very active in English but the same could not be said for Arabic. This leaves a large number of people behind due to language barriers.
2. Poverty: It has unfortunately been noted that climate change impacts the poor most often as they do not have the resources to properly adapt to the adverse effects.
3. Food security and nutrition: the poor are often the least educated and so not only do they not have the economic means, but they also do not have the ability to make studies and necessary analyses in order to forecast the changes that they are experiencing and adapt to them such as how the hotter climate and saline waters would affect their food security and nutrition.
4. Gender equality: When there are adverse conditions, it is also noted that girls are the ones that are kept out of school more often than boys and forced to marry young etc for the families to get dowry money. Because when girls are educated, there is a higher return on their communities and families, Project Drawdown listed girls' education as one of the most important solutions we have for limiting global heating to 1.5 degrees Celsius by 2100.
5. Political instability: There are studies showing a climate-conflict link that has been observed in the region. Whether climate was an underlying instigator for socioeconomic tensions that led to conflicts or climate impacts exacerbated existing tensions is debatable, however, the link is there, and education is key to resolving climate-related tensions.

About the Author:

Mai Shalaby is an educator and sustainability professional with more than 10 years of work experience in both fields. She has worked in Egypt, India, Kenya, and now the UAE on education programmes with people of almost all ages from kindergarten to adults and everything in between. The programs she worked on span various fields such as environmental conservation, cultural exchange and diplomacy, business management and consulting, agriculture and food security, and natural resource management. She is passionate about both education and the environment and sees their confluence as key to a sustainable future

SUSTAINABILITY IN EDUCATION: A NEED FOR CHANGE



Temperatures in Abu Dhabi hit 50.7°C this summer. How long before our own cells start to cook in this heat? Given that the planet is already 1.2°C warmer than pre-industrial times, the temperature rise will keep persisting if we continue to excessively emit carbon emissions and destabilise the earth's climate to a point of no return. Over the years, as people have increasingly grown more concerned about the impact of climate change on the environment, a lot of institutions, companies and brands are slowly implementing sustainable practices in their operations and striving toward delivering a 'greener' product. However, studies indicate that the rate of increase in global warming greatly outruns the pace of this transition. The problem lies in the current global awareness of the carbon impact of our actions and the need for radical innovation across all industries. As young professionals - the 'future of the industry', have we been adequately informed to expedite this transition?

Early this year, I was able to experience an incredible journey at EXPO 2020 - a global catalyst for sustainable development, innovation, and opportunities, hosted in Dubai. As I was pursuing a bachelor's in Architectural Engineering at the time, each visit to these pavilions introduced me to new possibilities of navigating through a high-tech future in harmony with nature and indulging in a practical reflection of my learning experience at university.

A 2020 global survey organised by Students Organising for Sustainability (SOS) International revealed that from over 100 organisations that participated, 40% of the respondents reported low or no coverage of sustainability in their courses while 92% agreed that educational institutes should actively incorporate education for sustainability development. How do we expect the world to advance if it hasn't reached the classrooms yet? This highlights an immediate need to introduce sustainability early in the curriculum and activities at school and progressively enforce its application to better equip students when they move into academia or the industry. It doesn't stop there, how we get students to internalise this sustainable lifestyle out in the real world is the biggest challenge.

I was first introduced to climate change and the environment through environmental studies (EVS) in primary school. As much as I don't recall 'sustainability' to be a buzzword back then, EVS was centred around its three pillars i.e., social equity, economic viability, and environmental protection. It included aspects that set a basis for societal and economic change such as quality of life, education, expenditure, savings, etc. but great attention was paid towards preserving natural resources, being responsible consumers and reducing waste. Do you remember learning to switch off the lights when not in use or to not leave the tap running when brushing your teeth? Students were involved in such scenario-based learning, art and crafts and roleplay but were also encouraged to grow plants at home and participate in 'save the earth' drives. Why is it that as soon as students move into single-discipline learning, all these fundamentals and initiatives boil down to a small 'eco club' running once-a-year recycling and plantation campaigns?

UNESCO emphasises that "No one discipline can claim education for sustainable development for its own, but all disciplines can contribute". Sustainability is a dynamic and complex concept that requires an interdisciplinary approach to accommodate its evolving nature. Today, compromises and decisions regarding the environment and society cannot be made solely focused on the interest of one, but rather as a collective whole. Recently, the UAE government has pushed STEAM (science, technology, engineering, arts, and mathematics) through educational reform to focus on building critical thinking and multi-disciplinary problem-solving skills amongst students. As schools readily integrate STEAM with their existing curriculum, students are encouraged to actively participate in holding debates, and interesting conversations and indulge in project-based learning. As a result, they learn to treat environmental concerns in relation to other disciplines, rather than as a separate entity. A prime example of a STEAM-driven sustainability initiative was the Solar Decathlon Middle East (SDME) Competition 2021, where university students were challenged to design, build, and operate an intelligent solar-powered house under the climatic conditions of the UAE.

Amongst the 8 finalist universities, I had the opportunity to take part in this initiative as an active member of Team ESTEEM from Heriot-Watt University, a group of multidisciplinary students from 5 academic schools collaborating with industry and academia to drive sustainability and innovation in the competition. In line with the world's carbon agenda, we were able to construct one of the world's first houses, fully constructed from Scottish-grown cross-laminated timber (CLT), which according to B&K Structures, has a negative net carbon footprint, more than two times lesser than traditional concrete. Is this a reason to celebrate? Absolutely.

But what's even more commendable is watching students like myself fine-tune our understanding of sustainability and extend these sustainable principles to all aspects of the competition. From being able to engage architecture students in the design for occupant health and wellbeing, and engineers in advocating for high-tech energy-saving solutions to business students in creating circular economy models and IT students in introducing the world to AR/VR design visualisation, it has paved a way for upcoming graduates to be able to direct their respective industries towards sustainable development. We learned to become advocates for organisations that were actively progressing towards a greener future' and influence those who haven't on-boarded this journey yet.

To indulge in such initiatives is highly rewarding to the student body but one cannot rely on it to drive sustainability in the education sector. We need to focus on integrating its principles within the single-discipline curriculum through the introduction of Sustainable Development Goals (SDGs). Set up by the United Nations General Assembly (UNGA), SDGs are a collection of 17 interlinked global goals designed to be a "blueprint to

achieve a better and more sustainable future for all". The alignment of UAE's vision for the educational sector with the UN's 2030 Agenda provides teachers with the perfect opportunity to explore these goals and create diverse opportunities for real-life learning in all subject areas.

Apart from using art and recycling drives as means to express environmental concerns, students could be asked to delve into research and write newspaper articles based on concrete case studies to address sustainability issues, for example in food systems. They should be encouraged to use computational thinking to analyse the climatic data trends and suggest recommendations for climate adaptability. Use statistics to express concerns over local access to clean water, electricity and education and might even consider using probability to predict the extent of this issue 10 years down the line. An economics student could be taught externalities with respect to the environment and understand the consequences of industrialisation and technological changes. Do you remember learning about photovoltaics to generate solar energy and the science behind its operation? Students should also be enlightened about why PV panels are in demand and how they contribute to carbon offsetting – how exactly would something you learn about directly affect the carbon impact of your day-to-day actions? They could even perform an audit around the school to identify non-renewable sources of energy and suggest how the same PV panels could possibly generate renewable energy on-site. It's interesting to see that one could probably draw inspiration from music bands such as Coldplay which have pledged to not tour the world again until their concerts are climate-friendly or Mr Klaje which uses instruments made from recycled materials and products. Who would have thought that music could go green?

This education model should be extended to accommodate university degree programmes through academia and industry involvement. A shining example of this is the 'Trashion' workshops running across various universities in the UAE – Fashion from Trash. This theme uses fashion design as means to educate an audience regarding the global problem of waste and how recycling, upcycling, and reusing materials could possibly relieve waste from reaching the landfill. The same could be applied to architecture and interior design where a sense of balance between philosophy and sustainable design should be maintained. While a lot of progress has been achieved in energy efficiency and operation carbon by engineers for decades now, students should now be made aware of the embodied carbon in their design and encouraged to conduct optimisation exercises to reduce the amount of material used and switch to natural alternatives. This carbon accounting exercise should be embedded in all disciplines such that we are made aware of our own carbon footprint and the scale of these emissions, which at times is difficult to comprehend.

An interesting example that caught global attention was a computer-generated time-lapse by Real World Visuals that was used to communicate the scale of carbon emission in New York City. Visualisations such as these could perhaps enhance individual awareness for example on the number of plastic cups and tissues used and question if there is a way to reduce material consumption within the campus. Are we encouraged to set the lecture hall's temperature to 24°C as opposed to 21°C to save energy or that we should carpool when we come to university? These are aspects of sustainability that every student should be aware of regardless of their field of study. An influential approach towards facilitating such knowledge sharing can be through liaising with professionals in the industry. Sustainability consultants and subject experts that are active in the industry are aware of our current standing on sustainable practices and can direct our focus toward aspects that need immediate attention. Ultimately, we all want to become responsible consumers but when do we start if not in our own homes, schools, and universities?

About the Author:

Nathan Britto is promising individual with a zeal to design sustainable and low carbon built environments. He has recently graduated from the Heriot-Watt University in July 2022 with a BEng in Architectural Engineering of the First Class. He was the Innovation Lead as part of the Runner Up team in the CIBSE Student Design Competition 2021 and Revit MEP Lead as part of Team ESTEEM in the SDME Competition 2021. He is currently an intern in the Sustainability Team at Ramboll Middle East.

SUSTAINABILITY IN EDUCATION



Sustainability means to last into the future, education is the only way to ensure something from now, endures into the future. So clearly education and sustainability are interlinked, Having completed a masters in Sustainability over the Covid period I would say that a couple of things about studying this subject at a good level stand out, one is there is a rollercoaster of dread combined with hope and which you move (often) between, The dread is inevitable I think when you look at the current situation, the positive faith in people that comes through learning more about solutions and actions we can take is both completely necessary and rewarding. The second thing about Sustainability is that it is incredibly general, there is an aspect of Sustainability in every part of the pursuit or profession in life. This makes it accessible and hard to get a grip of at the same time.

To speak personally I came to study Sustainability recently, and through an interest in CSR, I have been a teacher and trainer all my working life. This pretty much mirrors the world's recent seeing the light in terms of climate change and net zero. So, to ensure that this impetus isn't lost we need to educate people on the seriousness of the planet's situation and give them the knowledge to repair it. People like Al Gore and Greta Thunberg have succeeded in getting Sustainability onto the global Agenda, whereas people like Rachel Carson and Herman Daly were not as successful, we mustn't lose this impetus.

I said earlier how general Sustainability is, and I would say that we sometimes fail in our education systems to tackle the more every day or common-sense parts of life. We focus on academics without teaching people how to manage their money in school, or how to change a plug. The more we can integrate the basics of sustainable living into schools the better. One of the most committed and passionate teachers I know has just completed a course on incorporating Sustainability into education. With the help of UNESCO educators from the American University of Sharjah learned about incorporating the key tenets of the SDGs into teaching material used in departments across the university. In an international partnership, they worked to produce materials that will impact students' knowledge of Sustainability all across the curriculum. This is a great example of a positive new normal, where Sustainability is ever-present in the thoughts and considerations of people, instead of being a peripheral, or optional extra.

Education empowers all people, and education today especially motivates the young to take action. Incorporating sustainability at the heart of education gives it the prominence that it deserves and requires if we are to have any chance of making the changes to our economic and political priorities that are required in this time of climate emergency. Education for sustainable development means giving students the knowledge, skills, values, and agency to address the massive challenges the earth faces in this Anthropocene era. These are key challenges of climate change, loss of biodiversity, unsustainable use of resources, and inequality. When we make people and the planet the heart of education, learners understand the real urgency and need for change. Putting sustainability into the core of the education system immediately prioritises these issues instead of seeing them as an additional or peripheral matter.

The UAE has a long history of incorporating the ideas of Sustainability into its primary and secondary education sectors. Education for sustainable development (ESD) has been defined as “a process of learning how to make decisions that consider the long-term future of the economy, ecology, and equity of all communities”. In addition, the World Conference on Education for Sustainable Development (2009) defined ESD as “an approach to teaching and learning based on the ideals and principles that underlie sustainability”. The UAE can be viewed as being ahead of the game with its 2009 launch of its Sustainable Schools initiative which aimed to an understanding of the key values of Sustainability in public and private schools in Abu Dhabi. This program has grown to include over 150 schools. Other emirates within the UAE also include Sustainability criteria within their school inspection program. Sharjah also has a green Schools Award within its Sharjah Sustainability Awards, last year 22 schools from the Emirate were honoured for their efforts to incorporate sustainability into their teaching and pupils' learning experience. Individual schools like Fairgreen School Dubai, GEMS Millennium School – Sharjah, and St Joseph's Abu Dhabi in the UAE all have flagship Sustainability programmes.

Things move on quickly here in the Emirates but it is worth remembering that Expo 2020 closed just a few months ago. Sustainability was one of its overriding themes and millions of visitors, amongst them, hundreds of thousands of students passed through the Sustainability pavilion there or were impacted by other ESD initiatives which Expo pioneered. We can see then that there are a growing number of ESD activities going on here at all levels of the education sector and also more broadly in society. However, there are also challenges that the UAE faces in becoming more green. The massive and fast growth in construction and the high consumption lifestyle require huge amounts of energy, additionally, the unavoidable need for cooling and seawater desalination also creates very high GHG emissions. These are broader concerns, within the Educational field the varied reporting standards expectations in the different Emirates can lead to a lack of empirical clarity when it comes to reporting and tracking standards.

UNESCO leads the way globally in co-ordinating Sustainable Education initiatives UNESCO is the United Nations' leading agency for ESD and is responsible for the implementation of ESD for 2030, the current global framework for ESD which takes up and continues the work of the United Nations Decade of Education for Sustainable Development (2005-2014) and the Global Action Programme (GAP) on ESD (2015-2019). UNESCO's work on ESD focuses on five main areas: Advancing policy, transforming learning environments, Building the capacities of educators,

Empowering and mobilising youth and accelerating local-level action. UNESCO supports countries to develop and expand educational activities that focus on sustainability issues such as climate change, biodiversity, disaster risk reduction, water, the oceans, sustainable urbanisation, and sustainable lifestyles through ESD.

UNESCO leads and advocates globally on ESD and provides guidance and standards. It also provides data on the status of ESD and monitors progress on SDG Indicators Here in the Gulf UNESCO has been part of several projects including organising workshops in the UAE on t "The Role of Higher Education Institutions in Achieving the Sustainable Development Goals (SDGs) in the UAE. The meetings were part of UNESCO's role in assisting representatives of higher education institutions in the UAE with practical information on how to contribute to the achievement of sustainable development goals and the role of colleges and universities in doing that. In Qatar UNESCO regional office partnered with the Arab Youth Climate Movement Qatar to work on Climate Change Education through an initiative entitled "Measuring Household Carbon Footprint in Qatar through Youth Engagement".The initiative aims to educate students and households about their consumption patterns and to raise awareness of the impact of their lifestyle on global warming. Initiatives like these have the benefit that children become aware of more sustainable options of consumption themselves and also can share this knowledge with their families about how to better protect the environment and natural resources.

And although I led the Generality of Sustainable education initiatives I want to continue with another industry-specific initiative. I worked for many years in Banking and Finance Training. In terms of Sustainability finance is the area which I think has the most potential leverage to tackle the Climate Emergency. I always like to remind people that the famous American gangster Al Capone, was imprisoned because of his tax evasion. In other words, follow the money.

The UNEP Finance Initiative is a project that aims to encourage and enable banks to align their business with the SDGs and use that alignment as an engine to drive change through society.

The UNEP FI has 6 core principles that banks sign up to. This summer they launched a new education initiative in collaboration with The Chartered Banker Institute this new online interactive training, is designed for banking employees. brings together one of the world's most established professional banking institutes, the world's foremost responsible banking framework, and one of the largest organisations for international development cooperation worldwide. This is happening through the educational qualifications which are being offered. The key point here is that these training courses act as pathways from high-level policy decisions into people and business everyday lives. Once these courses are established then the products and services offered by banks on the mall or high street will be in line with them. The leverage here is huge, if mortgages, loans, and pension fund investments are directed toward decisions that support sustainable practices then this is a massive engine for change. Here in the UAE the Emirates Institute for Banking and Financial Studies will be offering these qualifications to bankers and students. This kind of initiative helps keep the UAE at the forefront of education in the sustainable finance field.

I would like to move onto a 3rd industry in which I've been involved, Aviation. And look at one of the key benefits a combination of Education and technology brought to it. Aviation is one of the most challenging industries to make sustainable as its core business activity is burning aviation fuel. Sustainable aviation fuels are problematic in their sourcing and effectiveness. A solution that led to significant reductions in the amount of GHG emitted. Signal is an app that analyses flying decisions and gives personalised feedback to captains to improve their efficiency and reduce fuel burnt. This impacts the Sustainability of flights significantly and is an example of highly personalised education for skilled professionals, resulting in reducing pollution. Signal is also being deployed in the maritime shipping industry, which could potentially result in massive savings in the use of polluting diesel fuels. This seems very specific but if goods and people are transported more efficiently, then our holidays, business trips, and our weekly grocery shopping and trips to the mall all become more sustainable.

Overall, the UAE faces a challenging but potentially very fruitful place when it comes to Sustainability, both in the field of education and the broader context there is a tremendous opportunity to create the change needed for sustainability through education. The UAE has a long track record of both innovation and imitation of the best practices from around the world. Other countries may be further ahead with their ESD frameworks, but few countries can move as swiftly and effectively to achieve a goal once it has set its mind to it. The country already has strong alliances such as UNESCO, the UNDP and UNEP. Using this knowledge and its resources and experience the country can certainly forge ahead with education for sustainable development.

About the Author:

A long time teacher and UAE resident David May has worked in higher education and in the banking, aviation and defence industries. He has an MA in English and an MSc in Sustainability. He is particularly interested in Sustainable Finance and Education.