

## “Brain Gain” in MENA: Igniting Future Prospects

Lisa LaBonté, CEO Arab Youth Venture Foundation (AYVF)

### Abstract

School aged children in the MENA region have intrinsic talents on a par with peers in the most dynamic markets across the globe and generally maintain extraordinary intuitive sense. However, it appears that many of these high-potential students are not sufficiently motivated or challenged, given current educational curricula or teaching methods. At a later age, those who go off to attend foreign universities—often highly promising prospects for the future—do not return either to build their careers or embark on creating economic opportunity at home. This “brain drain,” like that in any part of the world, occurs because dynamic jobs, innovative freedoms, and thus vibrant economic prospects for the future are not perceived as options at home.

The question we therefore ask ourselves is, What can and should be done to engage students, both those with the greatest potential as well as those who are less likely to leave home in the first place—indeed, all those who would take part in future productive economic activity? The answer, we believe, lies in creating innovative and accessible initiatives that captivate and ignite their youthful imaginations. By improving and augmenting STEAM<sup>1</sup> interest during the primary, formative years of a child's education, we not only facilitate the child's learning basic STEAM knowledge, but spark curiosity and passion for these fields of study. Through hands-on experimentation, the child will learn the real world implications made possible by mastering these subjects that form the foundation for activities that drive knowledge-based economies.

Such endeavors boost both the confidence and competence of our future leaders and, indeed, the entire workforce, thus opening up a greater tolerance for educated risk and expanded vistas of opportunity. In turn, the new opportunities, we believe, will spur larger number of entrepreneurs and thus lend a strenuous push toward the creation of millions of private-sector jobs by 2030.

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<sup>1</sup> STEAM™ = AYVF's acronym for Science/Technology/Engineering/**Aerospace**/Mathematics.

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## **Opportunity**

As MENA economies continue to grow, leading thinkers have articulated that increased and focused efforts need to be expended to create environments conducive to vibrant youth development while setting the stage for future economic opportunities. The Arab world is rife with rhetoric and media reports espousing the need for, and political interest in, the development of knowledge-based economies as part of nations’ economic diversification strategies. However, although there are a number of highly effective programs (e.g., robotics programs, science fairs, and educational competitions) running in several progressive countries (such as the UAE), greater funding of core programs and evidence to support the backing of such initiatives are lacking.

One wonders what the “Big Plan” is for preparing, on a broad scale, not only Arab youth participation in the innovation sectors, but even more so, for educating society and policymakers as to what the plan means, in terms of the attitudes and infrastructure required for knowledge-based economies to thrive.

### **If Economic Development is the End Goal, Start at the Beginning: Youth**

Instilling creative curiosity and building confidence in children

- leads to experimentation and the formation of hobbies,
- which spur interest in studies, inventions, and start-ups
- that empower career opportunities or support one’s livelihood,
- or which foster the creation of companies that generate more private-sector jobs, thereby
- enticing young adults (don’t lose them!) with exciting job or career opportunities
- that stimulate economic development at home,
- which benefits and sustains progressive societies!

### **Build, Support, and Sustain Innovative Programs: Talent Flourishes at Home**

“All men’s gains are the fruit of venturing”

—Herodotus

Observe most Arab communities, and you will find that young people seem overly energetic and creative—quite entrepreneurial in their approach—yet they appear substantially underchallenged. What to do?

School aged children in the MENA region have intrinsic talents on a par with peers in the most dynamic markets across the globe. MENA youths also generally seem to maintain a heritage of extraordinary intuitive sense. However, many of these high-potential students do not appear to be sufficiently motivated or challenged, possibly, as some may argue, because of deficient educational curricula, inadequate teaching methods, or the nature of local social and cultural systems.

Those who go off to attend foreign universities, perhaps in search of freedom from their own societal constraints or the repercussions of innovation, often do not return to build their careers or embark on creating economic opportunity at home. This global phenomenon, especially when the youngsters involved represent promising prospects for the future, is known as *brain drain* and results when a society does not produce enough dynamic jobs and economic prospects or lacks a framework or reward system for innovation.

The question we must then ask ourselves is, What needs to be done to engage these students—those with obvious talent as well as those with perhaps just as much latent talent—and ensure their future prospects so that they will take part in fueling productive and progressive economic activity at home? AYVF's answer has been to create fun, attractive, and accessible initiatives that spark thought and captivate young imaginations, while also capturing the attention of society and calling to the forefront the allure of STEAM.<sup>2</sup> Together, these two approaches demonstrate firsthand the passion that emanates from youth engrossed in such activities and the important role that scientific achievement and technological advancement plays in the formation of a solid educational base.

By augmenting and improving children's interest in STEAM at the primary school level<sup>3</sup> during the formative years of their education, we not only facilitate instilling basic STEAM knowledge, but also awaken curiosity and passion for those fields of study and their real-world implications and applications. Indeed, by enabling children to master these subjects, we lay the foundation for activities that drive knowledge-based economies. Enabling knowledge and hands-on mastery boosts both the confidence and the competence of our future leaders and workforce, thus opening up a greater tolerance for educated risk taking, thereby expanding vistas of opportunity. Reduced risk adversity, we believe, will in turn spur larger numbers of entrepreneurs and thus private-sector jobs, thereby lending a strenuous push toward millions of new employment prospects by 2020.

To impede a further brain drain in the region, it is paramount that parents, educators, and, in particular, government (policymakers and ministries or bodies of education) be engaged in the process so as to foster a greater understanding and, ultimately, the acceptance, of attitudes favoring innovation. Such attitudes will allow the building of creative confidence -or a pioneering spirit within children, and most critically, how this is not some Western stimulus, but characteristic of the historical, natural fit with local culture and heritage.

### **Innovative STEAM Activities to Help Fuel Vibrant Arab Economies**

Having experienced the severe disconnect between what was being said publicly in the media and in public forums and what was actually being agreed to, funded, and accomplished in order to meet articulated goals of building knowledge-based economies, (i.e. creating 20 million jobs by 2020), AYVF was created on the belief that a vital, compelling educational extracurricular infrastructure for the K-12 set could not and should not wait. AYVF thus began as a privately funded not-for-profit endeavor—an approach that allowed for entrepreneurial and agile operation from inception in order to minimize bureaucracy, which can often delay decision making and the timely implementation of ideas from their critical launch phase to proof of concept.

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<sup>3</sup> The primary or elementary school level (K-4) is also referred to as Cycle One in MENA.

Essentially an idea lab and launch pad, AYVF imagines and delivers initiatives to feed the inventive spirits of youth people across the Arab world through STEAM programs that provide interactive opportunities, initially by leveraging the excitement of space exploration. The AYVF:

- specializes in creating and producing alluring, high-impact programs, contests, and activities either by developing them in-house or by harnessing tactics and leveraging content that have garnered success elsewhere (e.g., global best practices and public domain content, each then localized, or “Arabized”).
- operates under the premise that the prosperity of a society is improved when companies are being built and jobs created. Inventors and entrepreneurs are the foundation of the future; thus, everything we do is aimed at nurturing more!

Strategically, we took many steps back to where it all begins and started with youngsters to provide hands-on, mentally challenging engineering/science/ technological activities to foster youngsters’ curiosity, motivation, and willingness to experiment in hopes of fueling hobbies, studies, careers, and, ultimately, livelihoods. AYVF began its programs to further support the big-picture concepts of MENA economic diversification and development. Launched first in the UAE, AYVF has achieved the following:

#### **Highlights 2008 and 2009**

- ✓ More than 22,000 kids (ages 6-12) have enthusiastically excelled in free, public AYVF hands-on activities over the course of 60 weekends since the summer of 2008.
- ✓ The organization has served 53 nationalities, 29% of whom are UAE nationals (Emiratis) who representing roughly 17% of the UAE population.
- ✓ A localized approach (beyond the bilingual aspect) has substantially increased participation and produced a 16% survey response rate. This data capture and interpretation allows for the beginnings of customer relations management and metrics/measurement systems that allow us to further improve and tailor our programs.
- ✓ Royal Patronage by leading royal family members was granted in three critical UAE markets.
- ✓ A trailblazing agreement was reached with NASA for regional educational programs.

#### **Highlights 2010**

- ✓ The first Arab interns began their training at NASA under key UAE sponsorship by Mubadala Development Company, lead by Mubadala Aerospace.
- ✓ The World Federation of United Nations Associations supports AYVF’s launch of the first United Nations Association (UNA) in the Gulf Cooperation Council (GCC), the UNA-UAE, and 12 new Model U.N. clubs are established in high schools across UAE in large part through funding by The Middle East Partnership Initiative Abu Dhabi, UAE under the umbrella of the U.S. Department of State.
- ✓ The STEAM Educator Training Series launched under a grant by the Boeing Corporation; the first 75 primary school teachers embark on building robots, space and aviation related simulations, experiments, and other fun, effective activities that they can bring back to implement into their classrooms and schools.

These successes have been achieved through a number of key philosophies, outlined next.

#### **Identify and Seize Educational Opportunities**

Utilize and channel students' natural fascination with space, and tie that fascination into practical, real-world applications across a multitude of industries. In this regard, space is the hook for carrying out "covert" STEAM education through hands-on, minds-on extracurricular activities and programs that excite, attract, encourage, and then positively reinforce youngsters' fascination with math and science. Youngsters succeed, work in teams, solve problems, reach consensus, build confidence in themselves and in each other, and truly think beyond limitations.

### **Strategic Programs and Unique Approaches**

- **Extracurricular (Weekends)**

AYVF's "STEAM@theMall":

- Kids' Spare Time
- Free and Easy Access
- Public and Popular Venues (Leading Shopping Malls)
- Public View/Exposure

One of the benefits resulting from this approach is that parents and the community can view, in plain sight, kids interacting with each other and enjoying and excelling in hands-on science and technology activities.

- **Improve Comfort Level**

AYVF's "Future Forward" was created to assure local participation by Emirati Activity Leaders. These 25 paid STEAM mentors (college engineering students who are able to reinforce cultural bonds) attracted and nurtured young local talent.

- **Relate and Aspire to Emulate**

Create role models for youth to identify with and look up to. The Arab world has many athletes, musicians, and actors serving as role models – yet relatively few who can be spotlighted to call attention to success in STEAM. AYVF created a STEAM Trading Card series featuring 25 high-profile Arab superstars in fields of science, technology, engineering, aerospace, and mathematics. UAE's newest youth STEAM role models are the country's NASA interns, who make public appearances to describe their experiences working at NASA, screen their STEAM video in schools, and sign autographs for hopeful young fans of science.

- **High-Potential Peer Networks**

The first of UAE's NASA interns make up a unique UAE alumni association. Every year, these stars attend peer networking sessions as well as participate in public outreach activities where they serve as role models for younger compatriots.

### **Collaborative Innovative Programs and Partnerships**

Identified and forged participation in a number of global programs and initiatives:

- U.N.-declared World Space Week: AYVF is the UAE, Bahrain, Qatar, Oman and KSA organizer of an annual festival occurring in over 50 countries.
- NASA Spaceward Bound 2011: This program in the Abu Dhabi desert is a science field expedition featuring 5 NASA/U.S. researchers and educators matched with 5 UAE researchers and educators and includes over 200 student participants.
- Visits by NASA astronauts and Russian/European cosmonauts
- Robotics Challenges: Mars Drop Zone and Country Organizer launching the First Lego League (FLL)

## **Continue the Momentum and Enhance STEAM Talent in MENA: Core Imperatives**

### **Critical Relationship between Academia, Government, and the Private Sector**

A nation's level of robustness and economic attractiveness is a function of its ability to "get things done." There must be both the perception and the reality of true economic opportunity. Toward achieving that end for its citizens, it is essential that nations:

- facilitate access to funding for viable and strategic education programs for youth and the community.
- provide access to capital for innovative business ventures.
- implement and maintain effective legal frameworks for commercial enterprises.
- foster strong industry networks and forums for exchange and collaboration.

### **Challenges to Overcome to Fuel a Culture of Innovation**

The following are among the challenges to overcome in order to encourage a favorable attitude toward innovation in its populace:

- Societal disengagement or misperceptions of STEAM as not related to their lives
- Market or Infrastructure limitations toward greater innovation, including the following:
  - Absence of intellectual property rights or protection and enforcement for intellectual property
  - Lack of dynamic networking sessions to connect like-minded people, as well as lack of venues for the exchange of ideas and industry best practices
  - Lack of Angel investor networks to empower the growth of entrepreneurship. (Such networks underlie the natural progression of innovative societies.)
- Cultural limitations toward greater innovation (existent in all cultures worldwide to varying degrees):
  - Fear of failure (thereby shaming the family or community)
  - Gender constraints ('acceptable' roles of women in society)
  - Peer pressure ("Nerd" or comparable references to those who pursue STEAM activities or study in lieu of other activities)

### **Summary**

Youth must perceive the possibility of economic opportunity and believe in future prospects if capturing their interest as key participants in economic growth is the goal. Why educate, mentor, and empower youth toward seeking dynamic futures if society is not set up for or will not tolerate the outcomes? It is incumbent upon us to build a societal framework that will be ready for the young talent of tomorrow. They are coming – in large numbers. (Many are already here!) They are intelligent, questioning, and very STEAM savvy. Again, it makes little sense to educate and invest in future innovators and the building of knowledge economies if there is weak societal support for innovation.

### **Potential Tactics to Build on in MENA**

- Offer engaging STEAM awareness programs to parents, government policymakers, and especially teachers.
- Provide local mentors to further enthuse local talent.
- Maintain peer networks and other venues for the exchange of ideas.
- Encourage scientists, engineers, and technicians to serve as role models to inspire students.

- Spotlight future career prospects and local economic opportunities.
- Sponsor collaborative competitions. (Foster team building, encourage a positive competitive spirit, and raise the bar.)
- Support the cross-pollination of ideas by bringing together scientists and innovators from different disciplines.
- Mentor young innovators. The next success story is closer than you think!
- Spotlight inherently gifted talent.
- Provide greater support for high potential, 'latently gifted' youth in STEAM.
- Foster team building and cohesion within the fields of math and science across MENA countries.
- Highlight and recognize excellence in teaching and education sectors and Ministries.
- Keep the faith!