Retooling the Academic Institutions for Economic Survival and Vital Entrepreneurship

Omar M. Ramahi
University of Waterloo
Waterloo, Ontario, Canada
oramahi@uwaterloo.ca

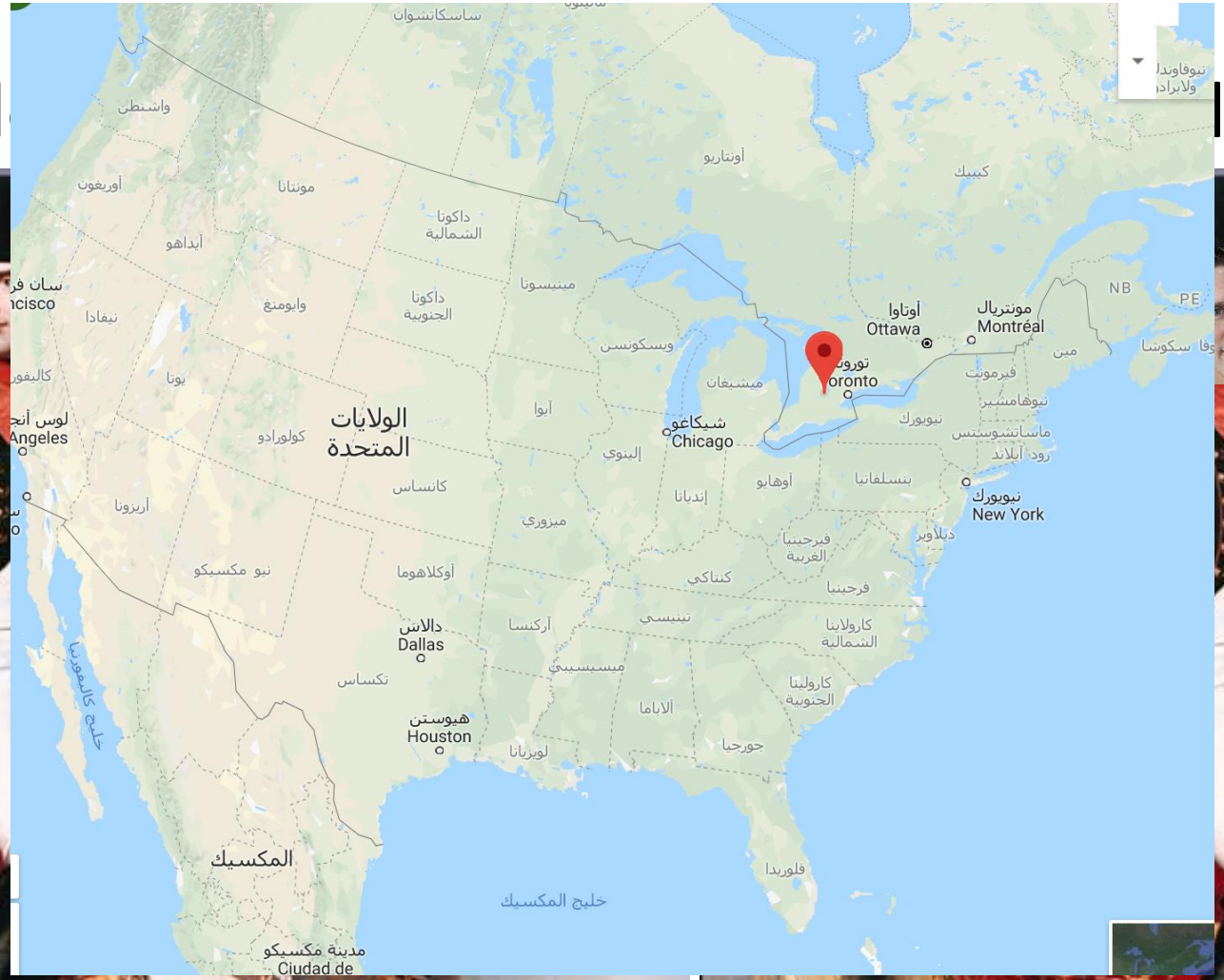
Al-Quds University
Al-Quds, Palestine, October 9, 2018

© Copyright Omar M. Ramahi, 2018

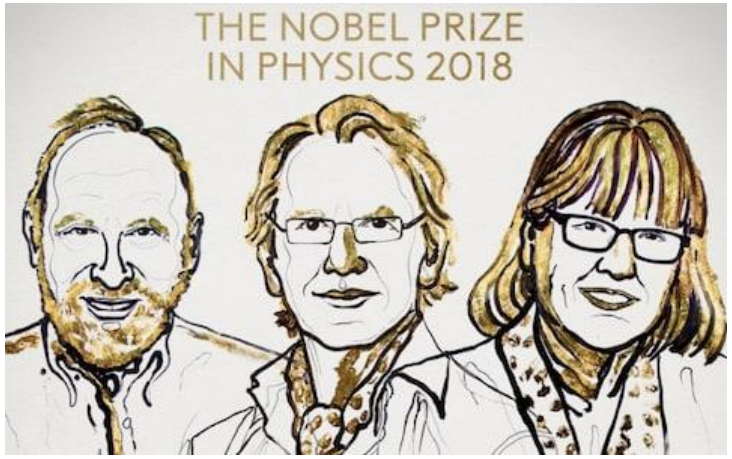
UNIVERSITY OF WATERLOO

Where is Waterloo

Waterl loo Canada



The University of Waterloo



Donna Strickland
Won the Nobel Prize in Physics

I Joined Waterloo

2005

2018

time

About me
What I *did*, not what I accomplished

1. Worked in academic institutions as a professor for 18 years at two major North American universities.
2. Worked in the industry for one of the leading hardware and software companies in the world (if not the leader)
3. Co-Founded The Eastern Rugs and Gifts Company, selling oriental carpets and fine tapestries. Sold in 1998
4. Co-Founded EMS+, a computational electromagnetics software simulation tool. Sold to Ansys in 2004
5. Co-Founded Applied Electromagnetics Research to market calibration spheres for anechoic chamber design
6. Co-Founded Wave Intelligence Inc. to develop breast cancer detection devices based on microwaves.

My Objective

- To create a healthy debate
- To sensitize the audience to few things that may have been overlooked
- Not to patronize or to offend
- Not to belittle good efforts by many good people
- To help improve the well-being of the Palestinian communities

© Copyright Omar M. Ramahi, 2018

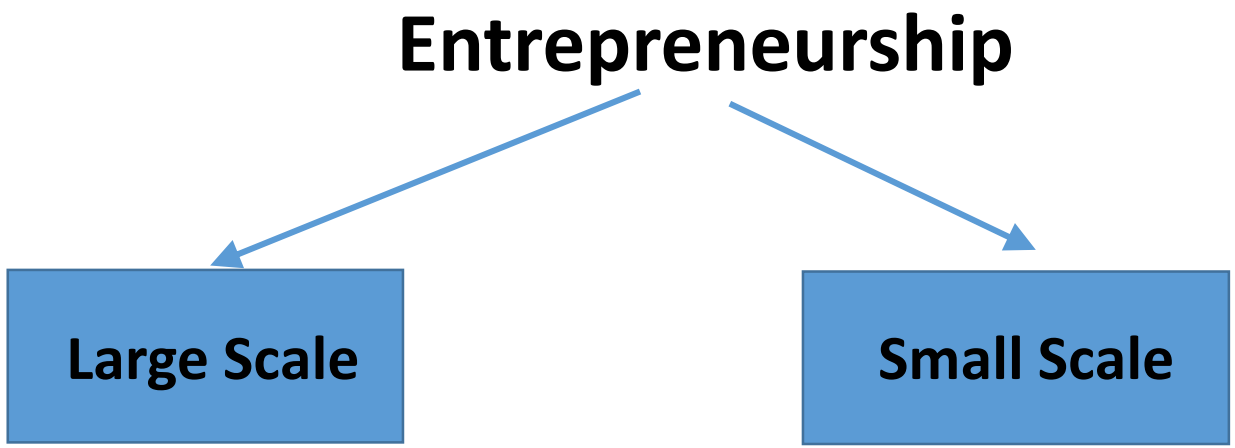
Entrepreneurship
(from Wikipedia)

Entrepreneurship is the process of designing, launching and running a new business, which is often initially a small business. The people who create these businesses are called entrepreneurs

In Economics: an Entrepreneur is an entity which has the ability to find and act upon opportunities to translate inventions or technology into new products: "The entrepreneur is able to recognize the commercial potential of the invention and organize the capital, talent, and other resources that turn an invention into a commercially viable innovation." In this sense, the term "Entrepreneurship" also captures innovative activities on the part of established firms, in addition to similar activities on the part of new businesses.

© Copyright Omar M. Ramahi, 2018

Entrepreneurship



© Copyright Omar M. Ramahi, 2018

Any Models out there?

The Rise of Germany ("small" model)

How many years it took Germany to become a power house? What is the seeds for the German perfectionist highly professional culture? A learning example or a learning model

Germany is not comparable to Palestine, but there are few lessons to be learned

© Copyright Omar M. Ramahi, 2018

The Canadian Model

- 30 Million Population
- 10th largest GDP (market value)
- 17th largest GDP (purchasing power)
- Exports: US$390 Billion

Canada is not Palestine… but…

© Copyright Omar M. Ramahi, 2018

The Waterloo Story

Pre 2008: Primarily few major economic players, most prominent is RIM (Blackberry) and Insurance companies

Today: Vibrant multi-faceted economy focused on high-end entrepreneurship.

The final virtual decline of Blackberry hardly affected the city…WHY?

© Copyright Omar M. Ramahi, 2018

The Korean Model

Korea is not Palestine… but…

“I have to pay back my country”

© Copyright Omar M. Ramahi, 2018

The Iranian Model

Retooling the Academic Enterprise to benefit the economy

Strongly connecting entrepreneurship with academic institutions

Iran is not Palestine… but

The Iranian model is a strong model to consider

© Copyright Omar M. Ramahi, 2018

The Entrepreneur Mindset

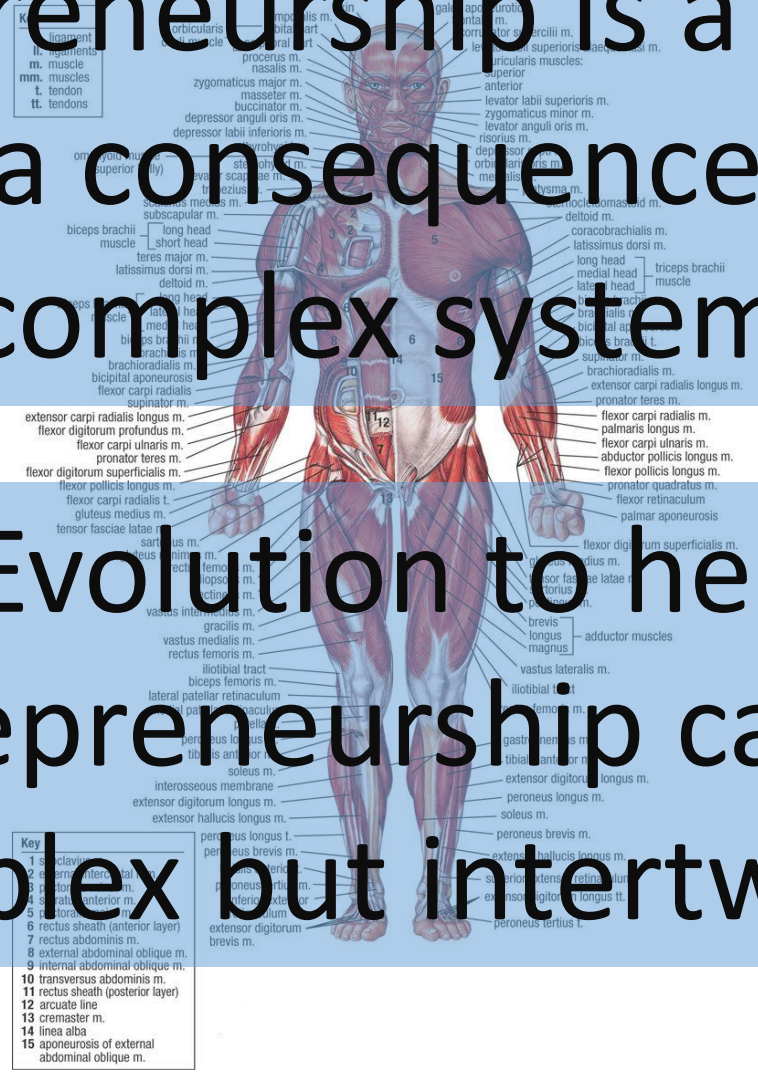
The mindset of an Entrepreneur is shaped by a culture

The mindset of an Entrepreneur is not a product of educational courses and/or workshops

The mindset of an Entrepreneur is a result of an evolutionary process

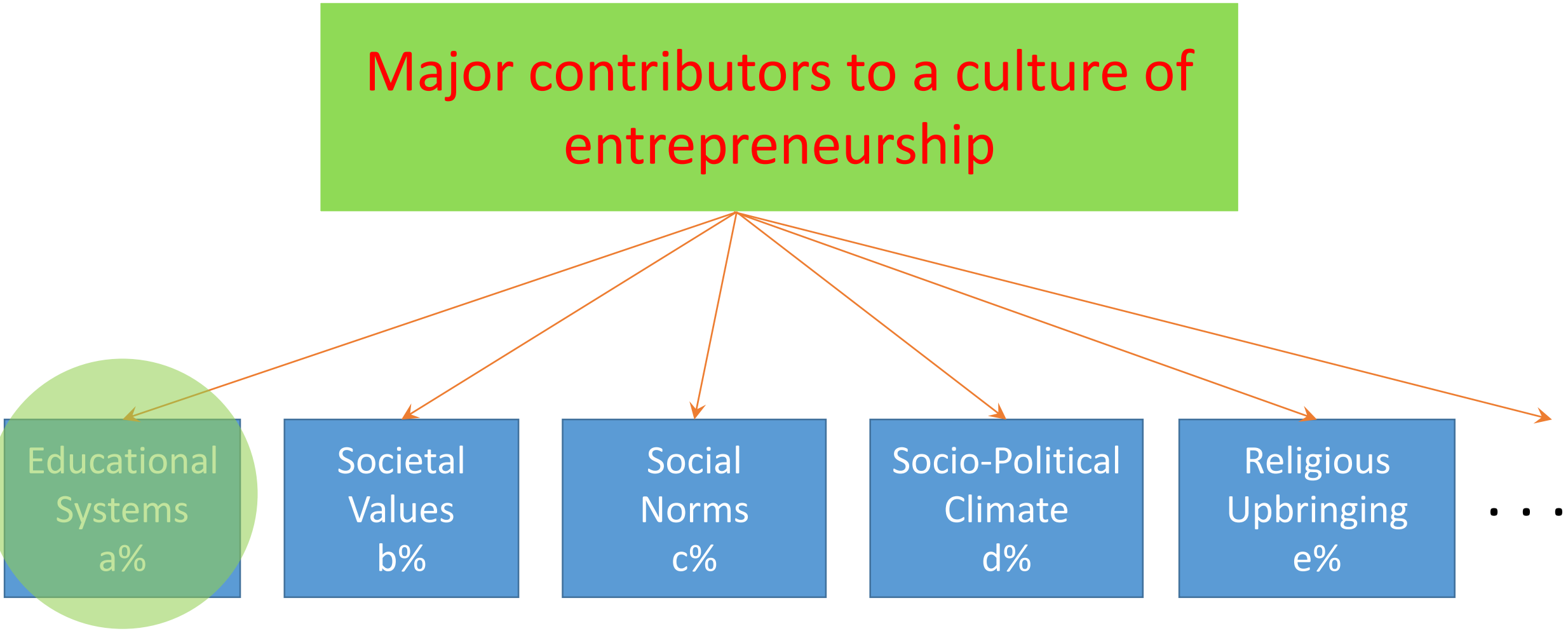
© Copyright Omar M. Ramahi, 2018

Entrepreneurship is a part of and a consequence of a complex system



The Evolution to healthy entrepreneurship can be Complex but intertwined

Culture of Entrepreneurship



© Copyright Omar M. Ramahi, 2018

The Role of Educational Institutions

Palestinian educational institutions-largely-have been very slow to retool themselves to address four fundamental needs

- Economic survival of their environment
- providing local needs
- ensuring long-term sustainability of local resources
- Add value to their stakeholders

© Copyright Omar M. Ramahi, 2018

The Role of Educational Institutions

We live in an extremely dynamic age… things are moving too fast and knowledge is generated at faster pace than ever in human history

© Copyright Omar M. Ramahi, 2018

Any Challenges?

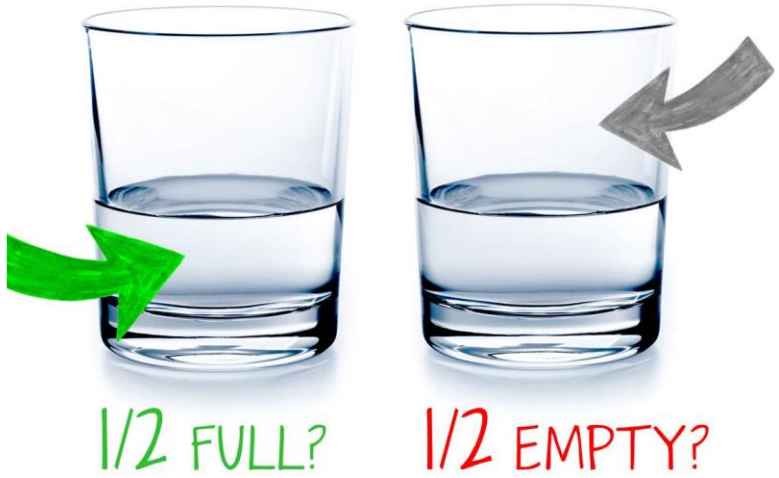
While challenges abound, having a strategy to achieve these four goals is essential

There will always be

- The nay sayers (don't ignore them but don't engage them either)
- The yea sayers (ask for substantive feedback)

© Copyright Omar M. Ramahi, 2018

Outdated Metaphors…



The half empty half full metaphor/paradigm

There is water in the cup… this is real data

NOT PERCEPTION

© Copyright Omar M. Ramahi, 2018

EMCS Educational Models

Colleges and universities involved in Engineering, Mathematics and Computer Science (EMCS), have adopted a model of education whose

(1) relevance to the Palestinian environment is questionable.
(2) Contribution to a culture of entrepreneurship is highly questionable if not detrimental!

Let me explain…

© Copyright Omar M. Ramahi, 2018

EMCS Models: How Relevant?

Engineering, Mathematics (applied) and Computer Science are **space and time relevant**… their mutability is **essential**. Their contribution to entrepreneurship is **primary!**

Example: Even selling cookies in today's marketplace requires optimization, economic forecasting, graphics design, packaging and channeled marketing

© Copyright Omar M. Ramahi, 2018

Why the EMCS model's relevance to the Palestinian environment is questionable?

- Curricula follow patterns adopted for different environments
- Curricula follow patterns adopted for different times
- following "the traditions of the forefathers"
- Lack of focus on Palestinian economy irrespective of its scope, limitations, size and impact.

Example: Take a look at any engineering or math subject!

© Copyright Omar M. Ramahi, 2018

Why the EMCS model's contribution to a culture of entrepreneurship is questionable or detrimental!

- **Creating a creative mind?** How can it be done? (the concept of a museum… a graveyard of the past or an inspiration for the future? Static museums vs. dynamic learning-oriented museums.) PRIDE VS. IMPOWERMENT?
- **Creating an inquisitive minds?** How can it be done? (inspiration, training, examples, self-respect…) The supremacy of the teacher/professor and the catastrophic problem of ego
- **Inspiration:** can hardly come from the dead (the past), but through live examples.

© Copyright Omar M. Ramahi, 2018

Why the EMCS model's contribution to a culture of entrepreneurship is questionable or detrimental! (cont.)

- **Conformity, and how much?** New Ideas vs. Conformity
- **Autonomy and how much?** Why and how and in which context?
- **Design challenges**… the game paradigm… how early?
- **System approach**. (any "successful" enterprise needs to think of solutions and needs rather than innovations or inventions)

© Copyright Omar M. Ramahi, 2018

Why the EMCS model's contribution to a culture of entrepreneurship is questionable or detrimental! (cont.)

- **De-mystification of giants**
  - ❑ **Why?**
  - ❑ **How?**

© Copyright Omar M. Ramahi, 2018

Technology Saturation

Technology Saturation… have we achieved it considering our time and space context? Has technological/technology advances far exceeded its relevance and utility?

- System engineering vs. classical engineering (difference?)
- Maturity of devices and technology
- Device/component technology may not be the direct solution to Palestine's economic challenges.

© Copyright Omar M. Ramahi, 2018

Unique Challenges Facing Palestinian Universities

1. Confidence to define dynamic priorities
2. Entrenched in legacy system
3. Lack of dynamic workforce

© Copyright Omar M. Ramahi, 2018

Challenges Facing MOST Universities

Not much different from the challenging facing Palestinian universities!!! But Palestinian universities are under pressure to alleviate severe economic and societal needs.

The changes advocated/proposed for other universities may not and most likely are not relevant to Palestinian universities… **The solutions have to be organic**

© Copyright Omar M. Ramahi, 2018

Striving for “No. 1”

- The No. 1 fallacy
- The relevance of No. 1
- German universities and the No. 1 paradigm
- Korean universities and the No. 1 paradigm
- Saudi universities and the No. 1 paradigm
- Is No. 1 an industry by itself?
- **The No. 1: effect on entrepreneurship**

© Copyright Omar M. Ramahi, 2018

Palestinian Universities and Emerging Opportunities

- Taking advantage of the **silent <u>revolution</u> in CAD design** in ALL aspects of engineering. What revolution?
- Create **high-level entrepreneurship** that creates highly-paying jobs while preventing brain drain. How?
- Can the internet fuel **high-level entrepreneurship**? How?
- The relevance of globalization vs. the relevance of the internet! Is there a difference?

© Copyright Omar M. Ramahi, 2018

UNIVERSITY OF WATERLOO

Universities are a strong catalyst for Change

© Copyright Omar M. Ramahi, 2018

Palestinian Educational Institutions: the imperative of change

- ***Metrics for Promotion***
- ***Metrics for Gauging Success***

© Copyright Omar M. Ramahi, 2018

Palestinian Educational Institutions: the imperative of change

Classic Metrics for Promotion

- **Publications?** Why? What purpose would it serve?
- **Conferences?**
- **Teaching?** Typically focus on effectiveness of teaching, but what are we teaching? Hardly the focus on what we teach but rather on the way we teach.
- **Service?** But service can be performed by administrators who can be more competent than faculty in addressing administrative issues. The expertise of the faculty better be consumed by intellectually-demanding services and exercises. *The North American Academic Service model is not suitable for all environments including North America!*

© Copyright Omar M. Ramahi, 2018

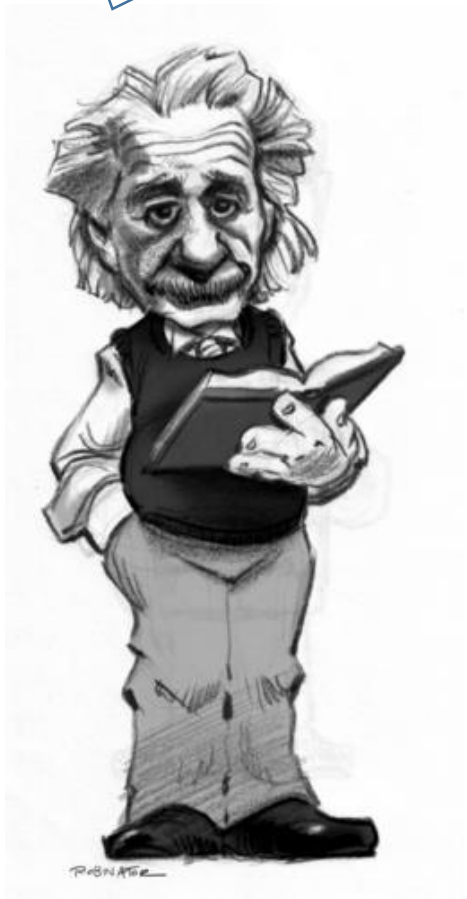
Educators MUST see the big picture

Educators and Interest

The Apple and Newton

The Apple did not fall on my head,
Thus I am not interested

Honey, I just discovered how the universe works



Honey, that is great, but we have nothing to eat today

Palestinian Educational Institutions: the imperative of change: *Metrics for Gauging Success*

- Gauging the success of the institution or
- Gauging the success of the faculty? (fame and glory for individuals or benefit of the economy?)
- Is the success mutual or separate?
- Need based
- Preservation of the institution's legacy?
- New Journals? Purpose? (examples…)

© Copyright Omar M. Ramahi, 2018

Best Practice?

- Based on need
- Organic with the environment
- Goals based
- Culturally sensitive
- The word “best” is not absolute!

© Copyright Omar M. Ramahi, 2018

UNIVERSITY OF WATERLOO

Titles vs. Added Value

Title-based society… the antithesis of entrepreneurship.

The example of advanced societies.

Let me explain…

© Copyright Omar M. Ramahi, 2018

UNIVERSITY OF WATERLOO

Academics MUST be part and be involved in the broader educational institutions

© Copyright Omar M. Ramahi, 2018

Elementary education and its contribution to a culture of Entrepreneurship

© Copyright Omar M. Ramahi, 2018

Elementary education and its contribution to a culture of Entrepreneurship

- ❑ Co-cop programs… building confidence
- ❑ Volunteering programs… building confidence
- ❑ Summer work programs… building confidence
- ❑ Design projects… building confidence
- ❑ Enhanced sensitivity
  - Questioning classic paradigm not for the sake of creating an anarchist society but for empowering (Example: Law vs. Observation and its effect on creating an eagerly inquisitive mind) and demystification of “giants”.
- ❑ Museums… The past can ignite curiosity to improve the present and future
- ❑ Good models and good examples.. LIVE models

© Copyright Omar M. Ramahi, 2018

Elementary education and its contribution to a culture of Entrepreneurship

- ❑ Adaptable teachers
  - Continued training and empowerment
  - Reexamining **educational material** rather than **educational methods**
- ❑ Confidence building vs. ego building
  - The future is the student *not* the teacher
  - Yielding for the benefit of the students…ALWAYS
- ❑ The distinction between confidence building and pride building
- ❑ Confidence in students comes from Confidence of teachers
- ❑ Goal oriented vs. accolades/decoration oriented (the example of Norway)

© Copyright Omar M. Ramahi, 2018

Elementary education and its contribution to a culture of Entrepreneurship

Building individuals with a very strong sense of responsibility…

a fundamental quality for entrepreneurship

© Copyright Omar M. Ramahi, 2018

Change: Is it possible?

Either we change to address our vision and future hopes or we change in a way that is detrimental to our well-being **and without knowing it**.

This change cannot come from legacy educators but from visionaries who place the highest priority on the well-being of the environment and all its constituents.

© Copyright Omar M. Ramahi, 2018

Change…

This change cannot come from legacy educators but from visionaries who place the highest priority on the well-being of the environment and all its constituents.

- Identifying the stakeholders
- Identifying the leaders of change
- Identifying the catalysts of change
- Identifying the ground troops

A shared enterprise… all have to buy into it…
It is a long-term process, not a quick fix

© Copyright Omar M. Ramahi, 2018

The Leaders for Change (who are they? and what is their need?)

- Value society and continuity more than self gains.
- Have grand visions.
- Have experienced greatness (directly or indirectly) either in its institutional form or its human form… something to compare to (a reference)
- Should receive value for their involvement.
- Deeply dedicated.

© Copyright Omar M. Ramahi, 2018

Change: A luxury or a Necessity?

If no change takes place, a major catalyst for progress is suppressed.

If no change takes place, no one will notice.

© Copyright Omar M. Ramahi, 2018

Change: A luxury or a Necessity?

Change starts with ideas

Academics are the most positioned to bring new ideas

© Copyright Omar M. Ramahi, 2018

The New York Times

Strong Risk of Crisis as Early as 2040