

What Israel Innovation Technology Has Taught Us: Insight into STEM Education

Allan Cheng & Albert Wong

22 July 2021



Ying Wa College

FOUNDED 1818 Steadfast Faith, Beneficent Deeds



The *New York Times* Bestseller

"FASCINATING AND ILLUMINATING . . . INDISPENSABLE."
—JEFFREY GOLDBERG, *ATLANTIC*



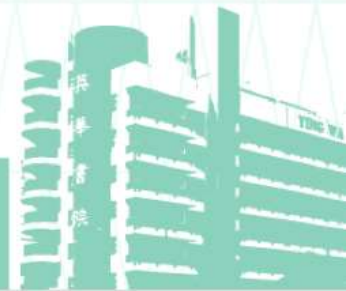
START-UP NATION

THE STORY OF ISRAEL'S ECONOMIC MIRACLE

DAN SENOR & SAUL SINGER

WITH A NEW FOREWORD BY SHIMON PERES
AND AFTERWORD BY THE AUTHORS

A COUNCIL ON FOREIGN RELATIONS BOOK



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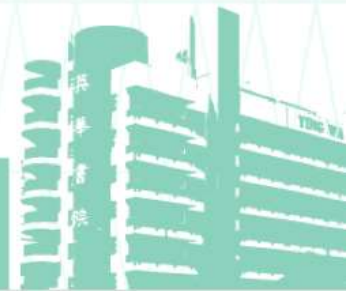
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ISRAEL

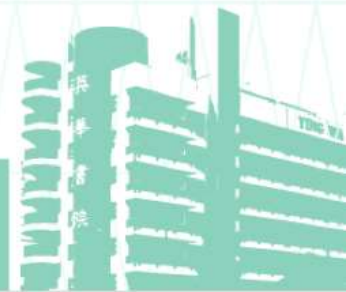
- **5th in The Bloomberg Innovation Index 2019**
- **10th in The Global Innovation Index 2019:** Creating Healthy Lives — The Future of Medical Innovation (World Intellectual Property Organization, WIPO)
- **1st in**
 - Entrepreneurial culture
 - Growth of innovative companies
 - R&D expenditure (4.3% of GDP)
 - Companies embracing disruptive ideas**in The Global Competitiveness Report 2019** (World Economic Forum)





ISRAEL

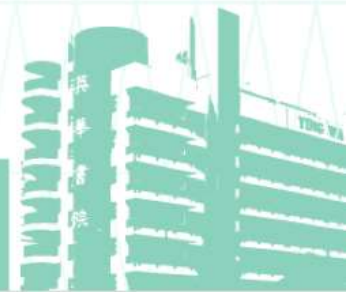
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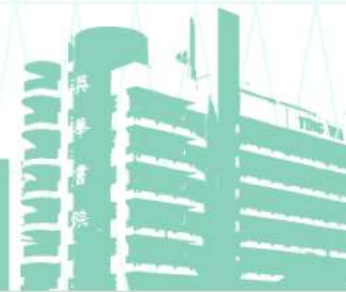
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- **Under constant threat of war by its neighboring countries**
 - *Prompting the country to achieve technological independence and supremacy, particularly in military capabilities, for national survival*





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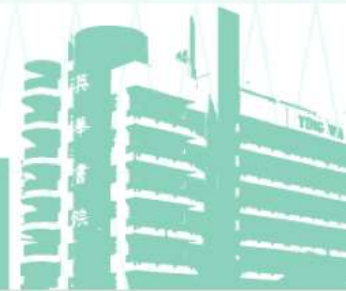
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 - *Implementing government policy to support and encourage industrial R&D projects undertaken by private firms as well as a variety of international programs, agreements and collaborations*
 - *Assisting the advancement of Israel's knowledge-based science and technology industries in order to encourage innovation and entrepreneurship while stimulating economic growth*



ISRAEL

The needs to innovate due to survival

- *Political and military situation*





ISRAEL

The needs to innovate due to survival

- *Political and military situation*
- *Geographical situation*

“Behold, I am doing a new thing; now it springs forth, do you not perceive it?
I will make a way in the wilderness and rivers in the desert.” (Isaiah 43:19)





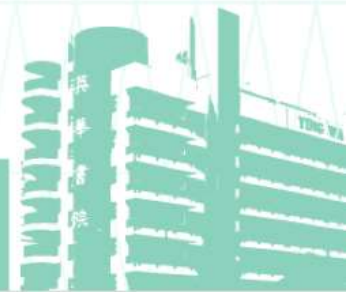
ISRAEL

英華書院  
YING WA COLLEGE

以色列創科教育團

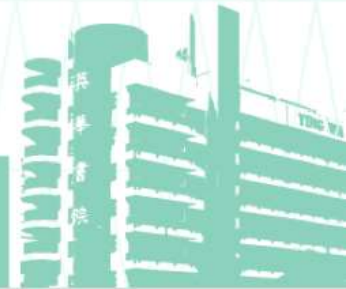
ISRAEL STEM EDUCATION TRIP

27 January 2020 – 4 February 2020





<https://www.youtube.com/watch?v=TqfuGeWKG8g>





School Visit : Seligsberg High School

Lecture: Entrepreneurship and Ideation- into the mind of the entrepreneur

Workshop : Innovation Strategies and Innovation Systematic Methods

PICOKids - Makerspace

Meeting with Israeli Ministry of Education and Ministry of Economy

Introduction to the Startup Nation and the Beer-Sheva Innovation Ecosystem

Visiting L.E.M Laboratory for Pathology and Cytology

Meeting with EdTech Companies and Ministry of Economy

Visit to Seakura SST

Visit Taglit Innovation Center
The origins of Israeli Innovation

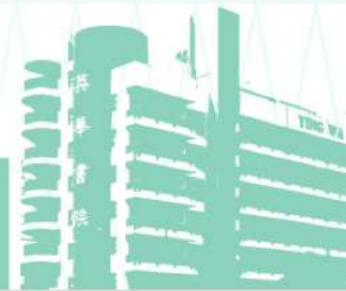




**STEM
Education**

Entrepreneurship

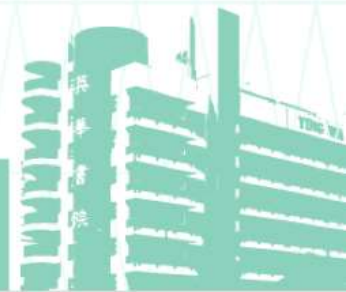
**Innovation
Technology**



The Hebrew University: Innovation Leadership Program

Design Thinking: *A human-centered approach to innovation*

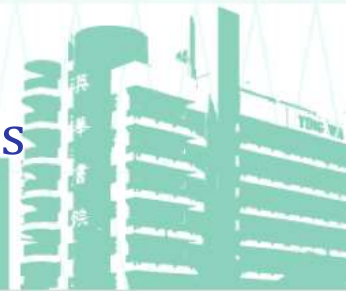
- The needs of people
- The possibilities of technology
- The requirements for business



The Hebrew University: Innovation Leadership Program



- The mind of entrepreneur
- How to create a successful startup
- The next “big” thing
- “Wow” factor investors are looking for in each startup
- Innovation strategies and innovation systematic methods





The Hebrew University: Innovation Leadership Program

Three Important Stages for Innovation:

1. *Perspective Taking:*

- Understanding the target-audience
- Identifying their unmet needs

2. *Idea Generation:*

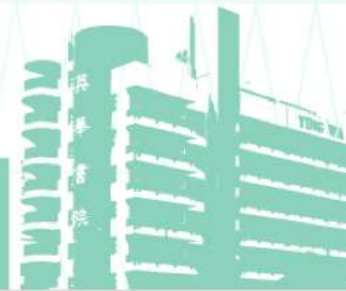
- Cycle process:
Novel solutions providing answers to unmet needs,
prototyping, testing

3. *Tell the story:*

- Communicating the value of the innovation in a compelling way,
- Highlighting the novelty and appropriateness of the innovation



Meeting at the Israeli Ministry of Education



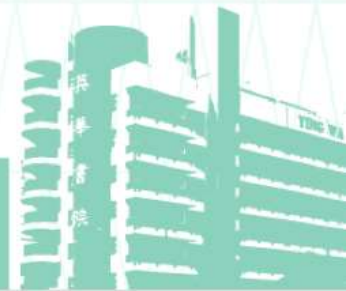
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Biology:

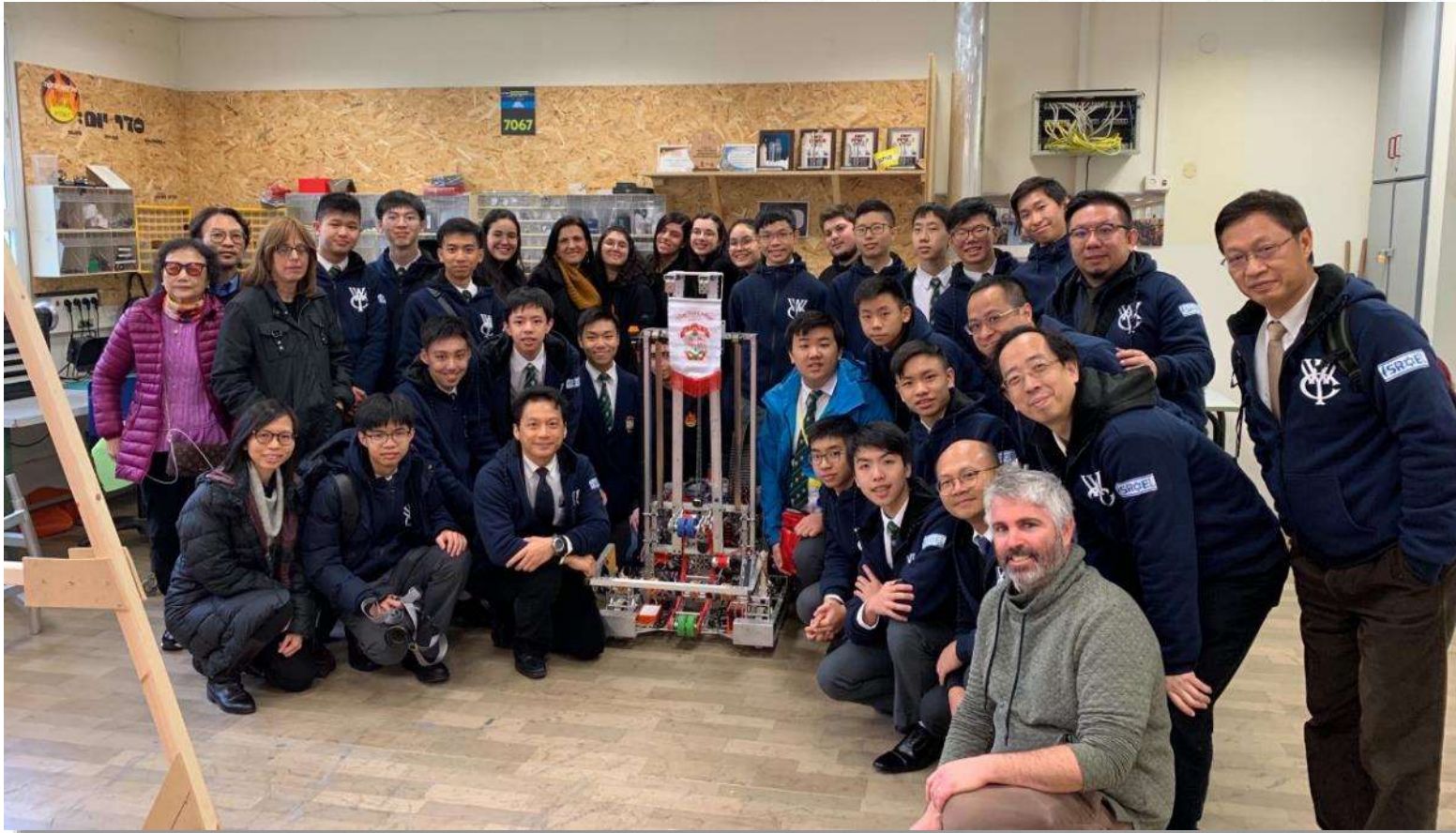
- **Inquiry (30%): Biology research** – a combination of different skills and team work within school and between schools
- **MOOC** – Massive Open Online Courses by University Professors
- **University in-service training** for Biology teachers
- **International collaboration** between teachers from Israel and Switzerland

Physics:

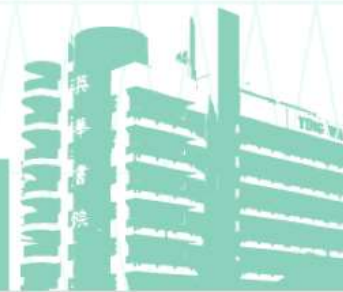
- **Collaborative framework** – leading team: 20 teacher mentors leading 100 teachers



School visit: Seligsberg High School



Workshop at PICO Kids



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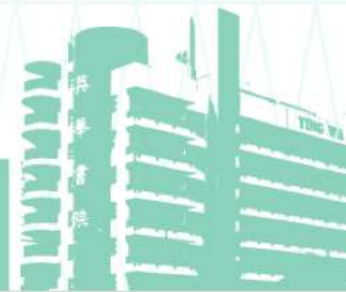


- Offering programs for students from 4th to 12th grades
- Based on **empathic education** in the STEEM model (Science, Technology, Engineering, Entrepreneurship & Mathematics)
- Incorporate **values** while emphasizing creativity through problem solving and critical thinking
- Emphasizing **social responsibility** and increasing entrepreneurial capacity

Israel: Insight into STEM Education

The Needs – Societal and Daily Life

- Students identifying the needs of innovation – solving problems



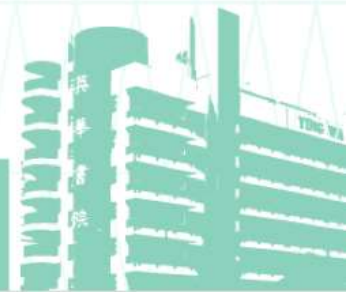
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- Human-centered, empathic education



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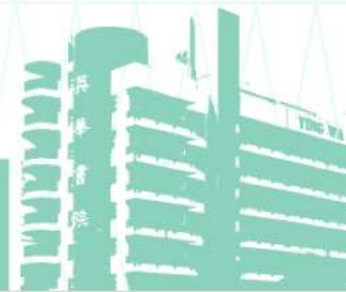
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- University and organization involvement



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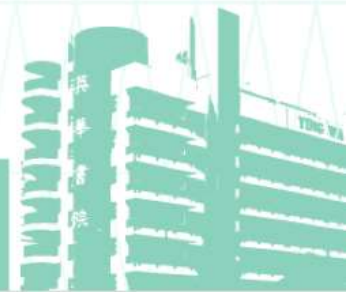
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- Training through learning circle, university involvement, international exposure and collaboration





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Government Policy on Innovation Technology

- Providing opportunities for entrepreneurship and careers development



Thank You

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