

Information Security Thought Paper

Cyber Education in Israel

Israel is a country in the Middle East, on the southeastern shore of the Mediterranean Sea and the northern shore of the Red Sea. It shares borders with Lebanon, Syria, Jordan and Egypt. Israel has a relatively small population of 8.5 million people but despite its size, it is one of the world leaders in cybersecurity.

How did Israel become a giant in the world of cybersecurity? Much of Israel's dominant Cybersecurity industry has to do with its short, conflict-filled history; in 1947, following World War 2, the independent state of Israel was created despite conflict and controversy with the exiting population and the surrounding nations. This conflict has continued to the present day and has shaped the development of Israel's military technology and training programs.

The world has entered the cyber age, as has geopolitics, forcing militaries globally to follow suit. Israel maintains an advanced military intelligence program with an internationally recognised focus on cybersecurity. One way that they are building such a strong program is by educating their youth on Cybersecurity at a young age. In this article, we will explore the impact of a highly successful Israeli youth education program called "Magshimim".

Cyber Education Program Magshimim

Magshimim (meaning "Fulfillers") is a youth education program in Israel that focuses on producing candidates for the military cyber-intelligence. Since its inception in 2011, the program has been highly successful and is gaining momentum within the country as well as internationally. The program itself is led by the Israeli Defence Force and their National Cyber Bureau. It is specifically designed to recruit students from underrepresented populations including girls, religious students, and children outside the major cities¹. Prior to getting accepted into the program, students go through a rigorous screening process where they must complete a quiz of riddles and challenges involving math and logic.

Once accepted for the Magshimim program, students from grades 10 – 12 meet in the afternoons twice a week for 3 hours¹. The students' study plan focuses on three central tracks: building algorithmic thought processes; understanding the structure of computers and the internet; and analyzing computerized systems and developing creative thought⁶.

Since its inception, this program has been extremely successful in creating exceptional cybersecurity candidates. They finish high school with skills comparable to north american computer science undergraduate students. Overall, more than 530 students have successfully completed the program, and it is in the process expanding from roughly 400 students to 4,800 participants over the course of the next five years¹.

The program has also helped stimulate the economy and provide students with summer jobs. Of Magshimim's 234 graduates last year, 61 worked in high-tech companies even before starting their mandatory military service after high school. The ones that did work in high tech companies earned 2.5 times more than their peers.



Cyber Education in Canada

A study in 2017 showed that Canada loses 0.17% of GDP to cybercrime, which is equal to \$3.12 billion/year². To combat this threat, Canada like much of the world has identified that there is a need for youth cybersecurity education. One of these programs is called CyberTitan (Canada's Cybersecurity Education Initiative)³. This program is offered by the Information and Communications Technology Council (ICTC) in affiliation with the (US) Air Force Association's CyberPatriot Program. The Cyber Titan program seeks to promote education and awareness in technology education in students pursuing careers in Cybersecurity or other STEM areas.

Although still a new program for Canadian education, it has been gaining traction as an increasing number of schools are beginning to utilize this education in their curriculum and register teams for the event. Now with over 92 schools and 500 students involved, the program is increasing Canadian cyber awareness⁴. However Canada currently has around 15500 schools in Canada so there is still a long way to go before it can reach the levels comparable to Israel⁵.

Although countries like the United States of America and Canada do offer youth many similar educational programs and opportunities in cybersecurity, Israel differs significantly from North America in crucial ways.

In Israel, cybersecurity awareness is considered a matter of national interest. The Prime Minister speaks frequently at cyber conferences on the importance of cybersecurity; as well, the government works hand in hand with businesses and military to promote cybersecurity education. Youth in Israel are taught from an early age about the national role of cyber intelligence as well as the advantages of a cybersecurity career.

Availability of education is also a key difference. Israel has multiple programs in place to educate youth and many of these programs specifically target underrepresented populations would otherwise would not be considered. This allows the program to broaden their pool of talent.

Recommendation

If Canada can foster awareness around the growing need for cybersecurity skills and follow up with stronger education programs, we could expand the number of cyber professionals and cyber startups in Canada.

Resources:

- 1) http://www.slate.com/articles/technology/future_tense/2016/07/israel_s_magshimim_program_trains_teenagers_to_work_on_cybersecurity.html
- 2) <http://www.chamber.ca/download.aspx?t=0&pid=45d7b003-3716-e711-b105-005056a00b05>
- 3) <https://www.cybertitan.ca/>
- 4) <https://cira.ca/blog/cybersecurity/helping-support-cyber-warriors-future>
- 5) <https://www.cmec.ca/299/Education-in-Canada-An-Overview/index.html>
- 6) <http://www.pmo.gov.il/English/PrimeMinistersOffice/DivisionsAndAuthorities/cyber/Documents/Magshimim%20Leumit%20program.pdf>

