



## NCSIP Position Paper

### Cyber Education for K-12

Prepared on behalf of NCSIP with input from Committee Members

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#### **INTRODUCTION**

Cybersecurity has never been as imperative as it is today. In order to protect citizens from cybersecurity threats they must be cyber aware. Educating youth is the most effective way to raise cyber aware citizens.

#### **POSITION**

Individuals and businesses in Canada are being targeted more than ever and cybersecurity threats are forecasted to cost the global economy over \$6 trillion. A study in 2017 showed that Canada already loses 0.17% of GDP to cybercrime, which is equal to \$3.12 billion/year<sup>2</sup>.

To combat this threat, Canada like much of the world has identified that there is a need for youth Cybersecurity education. **It is the position of NCSIP that cybersecurity must be added to the curriculum in elementary, middle, and high schools across Canada.** Though lagging behind some other countries, some cyber programs in Canada are starting to gain more traction. One of these programs is called CyberTitan (Canada's Cybersecurity Education Initiative)<sup>3</sup>. 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 more and more 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 Canada cyber awareness and cyber education initiative<sup>4</sup>. However there are approximately 15500 schools in Canada so there is still a long way to go before we can reach the levels of top national cyber centres like Israel<sup>5</sup>.

#### **CYBER EDUCATION IN ISRAEL**

Israel is a country in the Middle East, on the south-eastern shore of the Mediterranean Sea and the northern shore of the Red Sea. Its land borders Lebanon, Syria, Jordan and Egypt. Israel has a relatively small population of 8.5 million people and despite this it exists as one of the world leaders in Cybersecurity. Why has Israel become such a strength in the world of Cybersecurity?

Much of Israel's dominant Cybersecurity industry has to do with its history -- one that has seen much conflict. In 1947 following World War 2, Israel became an independent state, much to the dissatisfaction of the neighboring countries. The discontent arose because much of Israel rests on historical sites deemed holy by both Jewish and Arabic people. As Israel is predominantly Jewish and the countries surrounding Israel are predominantly Arab, there has existed



continued conflict since its independence in 1947. The ongoing conflict forced Israel to continually equip its military with the best advancements and training available.

In recent times the world has been thrust into the cyber age and this has required militaries globally to stay relevant. For a small country such as Israel to stay safe from bordering countries, it must maintain an advanced military intelligence program. One way they are building a strong intelligence program is by educating youth on Cybersecurity from a young age. The name of the highly successful Israel youth education program is “Magshimim”.

### ***CYBER EDUCATION PROGRAM MAGSHIMIM***

Magshimim is a youth education program in Israel. Since its inception in 2011 the program has been highly successful and is gaining momentum within the country as well as internationally. The focus of Magshimim is on youth cyber education in Israel, the program itself is led by Israeli security forces and their National Cyber Bureau. The programs are specifically designed to recruit students from underrepresented populations in cybersecurity including girls, religious students, and children outside major cities<sup>1</sup>. Prior to getting accepted into the program students go through a rigorous screening process where they must complete a home quiz of riddles and challenges involving math and logic. This program has helped to build a larger pool of gifted students for the military to choose from. Many of the information security start-ups in Israel are founded by ex-military.

Once accepted to the Magshimim program, students from grades 10 – 12 will meet in the afternoon twice a week for 3 hours<sup>1</sup>. 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 thought.

Since its inception, this program has been extremely successful in creating exceptional Cybersecurity candidates. They finish high school with a skill set comparable to that of many college juniors and seniors who study computer science in the United States. Since its beginning, more than 530 students have successfully completed the program, and it is in the process of trying to scale up the size of its classes tenfold, from roughly 400 students to 4,800 participants over the course of the next five years<sup>1</sup>. 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 military service after high school. The ones that did work in high tech companies earned 2.5 times more than their peers.

### ***RECOMMENDATION***

Although countries like America and Canada do offer youth some similar programs there are big differences between North America and Israel.

The first is awareness, in Israel, Cybersecurity is a national interest. The Prime Minister speaks frequently at cyber conferences on the importance of cybersecurity and the government works hand in hand with businesses and military to promote its education. Youth living in Israel from an early age learn about the importance of cyber intelligence in keeping the country safe as well as how lucrative it can be as a career.

The second big difference is the availability of education in this area. The country of Israel has multiple programs in place to educate youth. One big difference is that the programs focus on targeting underrepresented populations who in other countries would not get this opportunity. This allows Israel to identify top talent that may otherwise go unrecognized.



Canada must build increased awareness regarding the need for cyber professionals and the opportunities that exist in this field and provide stronger educational programs to support the need. Only then will Canada see an increase in the number of cyber aware citizens leading to an increase in cyber professionals and cyber aware adults.

## ***REFERENCES***

- 1: [http://www.slate.com/articles/technology/future\\_tense/2016/07/israel\\_s\\_magshimim\\_program\\_trains\\_teenagers\\_to\\_work\\_on\\_cybersecurity.html](http://www.slate.com/articles/technology/future_tense/2016/07/israel_s_magshimim_program_trains_teenagers_to_work_on_cybersecurity.html)
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