



Technology Curriculum Reform

The First Step in High-Tech Development



By Aref Hussein

The official educational reform process of the technology curriculum began in 2009, following two years of research, evaluation, and observation of the previous curriculum pitfalls. Its vision? To prepare students for the technological development of the twenty-first century and to convey how to live, learn, and work successfully and responsibly in a complex, technology-driven society. Today, the educational system has succeeded in producing high quality educational books that suit the needs of today and tomorrow.

The technology curriculum in Palestinian schools had been provoking negative feedback from various members of society. Parents, teachers, and students all agreed on the need to change and update its content. In a pre-assessment study of educational reform and teacher rehabilitation, it was discovered that most parents of elementary-level students faced difficulties teaching their children the assigned content – and by teaching, we mean memorization – where parents of secondary-level students did not even see the purpose of the technology curriculum. The study also showed that teachers complained about equipment, time, and infrastructure. Others doubted the students' willingness to learn the curriculum. Students thought that the technology curriculum was boring and too intense; they had difficulties studying it.

These findings compelled us to ask: What do we want from students who study technology throughout their school years, and how is what they learn connected to work and life outside school?

More importantly, we should ask: What are the characteristics, skills, and capacities of our graduates? Are they appropriate for the academic and professional requirements set by universities and colleges? Do they meet market needs and support the Palestinian economy?

We want a national technology curriculum that builds students' capacities and invites change. We could have imported and translated distinguished educational books from the best educational systems in the world, but that would mean accomplishing the vision of foreign educational systems rather than serving Palestinian society.



Student building her own robot at Al Nayzak's technology lab.

General policy and collective responsibility require that the technology-curriculum reform supports our national goals and vision. If we are looking for graduates who excel at the consumption of technology, there would not be a need to teach an official curriculum because our children are default learners of technology consumption. If, however, we aim to produce competitive technologies, then we should incorporate

programming at an early stage of the educational process. If we aspire to increase local industrial and technological production, then our curriculum should build knowledge of and spark passion for automation, automatic control, and advanced mechanics; the subject matters we teach should aim to instill in our students enthusiasm for learning about artificial intelligence and engaging in robotic design.



Students learn critical thinking and problem-solving skills using interactive learning tools.



Robotics training.

The reformed technology curriculum replaces consumption with production and instills a deep understanding of the process of technological production. It is built on six distinct pillars. The “thinking technology” pillar builds capacities in problem solving, encouraging students to examine how technology can be used and enhancing an engineering mentality by shedding light on technologies that affect daily life. The “agricultural technology” pillar connects advanced technologies with the development of agricultural production and encourages students to pursue this as a profession. The “construction and renewable energy” pillar explains how to use technology in new constructions. The curriculum also includes the “medical technology” pillar, the “automatic control, robotics, and logistics” pillar, and the “information and communication technology” pillar. The main purpose of the academic content is the interactive application of knowledge, where

all pillars are connected in order to motivate students to think critically and logically, and to enter the field of innovation and entrepreneurship.

This curriculum, which includes the book, the active teacher, and the motivational learning environment, establishes the workforce that is needed for high-tech industries. In my personal opinion, we will only be able to advance when the next generation learns at an early age how to become professional producers of technology.

We teach and educate our children for jobs that are yet to be invented, jobs that are highly related to advanced technologies. Our generation is the immigrant generation to technology, whereas future generations are the natives. They grew up among iPads and smart phones; they enjoyed various apps and registered social media accounts before they even turned ten. They shared their own content and productions with the world. We should employ this momentum and orient these skills and this knowledge to overcome the challenges that face advanced industries in Palestine. Private-sector companies should invest more in technology education and the provision of necessary tools and equipment for educational institutions. They should partner with universities and support technological research that in turn helps advance the technology industry. Our true capital is the knowledge, skills, and innovative ideas of technology professionals. This is how we can become proud of a Palestinian high-tech sector in the near future.

Eng. Aref Hussein is the head of the National Team for Technology Curricula Reform and a member of the National Committee for Education Reform. He is the founder of Al Nayzak Organization.

Article photos courtesy of Al Nayzak.