



DRAFT

## **STARTUP NATION AT RISK:**

FIVE-YEAR REVIEW – 2016

The five years since the establishment of the Trump Foundation have offered us a real opportunity for engagement, dialogue and learning. During this period, the foundation joined the playing field of Israeli education and realized its agenda, while forging partnerships with leading educational institutions in Israel that develop and implement groundbreaking projects.

Collaboration, openness and engagement are values that have guided us from the start. Our Strategic Roadmap, which drives our work until today, was written together with experts, researchers and teachers. They continue to provide us with sound advice, opinions and critique, and they play a central role in our work.

Now the time has come to stop for a moment, to summarize what we have done together, and to clearly formulate what we have heard from you along the way. We must ask: What have we learned about what is needed? What is possible, and what is difficult? What else do we need to know and how can we improve our shared way forward?

This document attempts to grapple with the insights and lessons so far, while describing our activity and progress, and proposing a more in-depth strategic roadmap. Like its earlier version, the document serves as a collaborative navigation map that is in constant motion. As such, it is open to comments, responses and proposals, as we are fully aware that further amendments will be made to the document in the future.

This is also a good opportunity to thank you for your friendship, sincerity and candor. We recently received systematic feedback from you, which was very flattering in parts, and also indicated areas we must improve. Your feedback is priceless; we are in great need of it, and are extremely grateful for it.

We would be happy to receive similar feedback from you on this document. Please read it with a professional eye in light of your rich experience and share your thoughts, doubts and ideas with us. For us, it is a great honor to listen to you, to learn from you, and to be partners with you in pursuing a mission of social and national importance.

The Trump Foundation Team.

## **HIGHLIGHTS**

### **Addressing a National Call**

The Trump Foundation was founded in 2011 to help the education system in Israel stem the decline in excellence in the study of mathematics and the sciences in secondary schools, and to nurture significant improvement.

We see our mission as addressing a national call, aimed at enabling Israel to catch up to the world's leaders in educational achievement and better position itself towards the second quarter of the 21<sup>st</sup> century.

For this purpose, the foundation chose to invest in teachers and teaching. This stems from an understanding that there is no sustainable shortcut to an outstanding teacher who makes all the difference. Therefore, our strategic plan seeks to foster and instill **high quality teaching**, and make it more accessible.

Quality teaching focuses on the learning of each student, diagnoses each student's abilities and difficulties, sets ambitious goals with them, adapts itself to their way of thinking and pace of learning, offers constructive and supportive feedback, and is developed within a professional community of colleagues.

We strive to help teachers enhance their teaching practice. In order to do this we work with teachers, schools, educational organizations, school networks, districts and local government authorities, as well as universities, colleges, hi-tech companies and the national government.

Together with them, by 2015 the foundation approved funding of 125 initiatives, with a budgetary allocation of over 100 million shekels (from approximately 600 million available to it) focusing on recruitment, training, instructional coaching and professional development for teachers, and establishing the conditions for supporting quality teaching at scale.

We are already beginning to see a reverse of the trajectory. Nonetheless, in order to nurture quality teaching, we have decided at this stage to add to our efforts several amplifying activities designed to establish partnerships, weave networks, build knowledge and motivate ever-widening circles to action.

We assume that a combination of these activities and professional infrastructure, implemented together and in congruence, will enable the successful interaction of policy, research, and practice. In this manner, we believe that the decline will be transformed into growth and that the desired improvement will be achieved and firmly established in an enduring manner.

## **VISION AND MISSION:**

### **From Pioneers to Start-up Nation**

Human talent is Israel's most important resource. Starting with the pioneers who made the desert bloom, followed by courageous soldiers who defended the nation, ground-breaking scientists, and entrepreneurs who built the "start-up nation." However, times have changed and this relative advantage is now imperiled.

As a state built upon science and technology, Israel cannot allow itself low educational achievement in general, and a low bar of excellence in particular. This is a reality that cannot be accepted as fate. Therefore, Israel must close the gap in educational achievement in order to be better prepared heading into the second quarter of the 21st century. The Trump Foundation's vision is to help Israel propel a national process to encourage and foster excellence in the fields of mathematics and the sciences. These are fields that produce scientific breakthroughs and enable innovative technological developments. They provide the basis for many solutions to 21<sup>st</sup> century challenges – in medicine, agriculture, security and environmental protection.

We have learned that the potential for excellence in Israel is located throughout the country, and it crosses barriers of ethnicity and gender. We know that many high school students are interested in and capable of learning mathematics and science at a level of excellence, if only we were able to present them with the challenge and offer them quality teaching.

Hence, the Trump Foundation aims to enable every student in Israel who is willing to accept the challenge to exercise their right to high quality teaching that will assist them to learn at a level of excellence in mathematics and science. Thus they will be able to maximize their potential and open the door to a better future for themselves, their family and for the state of Israel.

## **NEED AND OPPORTUNITY:**

### **Rising Standards for Success**

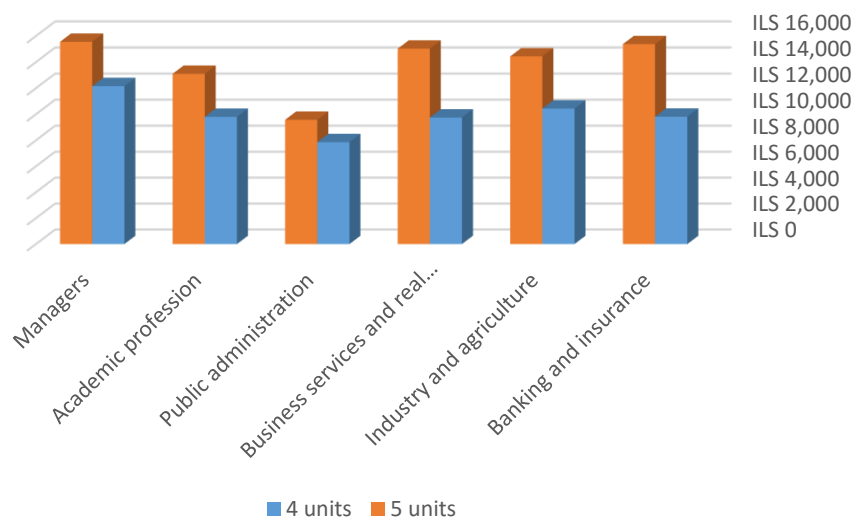
In the previous generation, a matriculation certificate and undergraduate studies were a pre-condition for success in life. These opened the door to employment at a reasonable wage and a good standard of living. In 1990, this path was only open to a minority of youth in Israel - about 30% of total high school graduates matriculated with a high school diploma, and 23% were accepted to bachelor's degree studies.

Since then, and thanks to government policy, efforts were made to enable more students to earn a matriculation certificate and continue to academic studies. Vocational tracks were closed, regional colleges were founded and more teacher positions were created. The results were rapid: the percentage of those eligible for a matriculation certificate and undergraduate studies has doubled.

This national endeavor has created exceptional access to higher education for approximately half of Israel's citizens. Today we may say with pride that eligibility for matriculation and academic degrees are no longer a major expression of social gaps in Israel, as they were in the past. However, the price of this policy began to emerge when the gates to higher education ceased to expand.

For example, because the labor market did not grow in parallel to the growth of the education system, the gaps which previously occurred in eligibility for matriculation are expressed today in the quality of the matriculation certificate. Competitive university degrees, which open the door to high-wage employment, give preference to high quality matriculation diplomas, which include five units in mathematics, English and a science subject.

## Difference in Monthly Salary at age 29 between Graduates of 4 and 5-unit tracks in Mathematics



*Taub Center, 2015*

Realizing that Israel's students were being left behind as the rest of the world moved forward, the government decided to gradually raise teachers' salaries, and to add individual teaching to their regular classroom instruction. As a result, and due to a series of government programs, Israel has witnessed the initial signs of improvement in student achievement in elementary and middle schools.

Secondary schools are the focus of the next improvement. Many students are interested and identified by their schools as capable of learning mathematics and science at levels of excellence. However, some are unprepared for the rapid teaching pace, the high expectations, the heavy workload, and the need for diligence and perseverance, and they soon drop out of the five-unit track.

In other schools, we find that advanced tracks of study in mathematics and science are not offered, whether due to satisfaction with merely earning the matriculation certificate, lack of teachers or a small number of students. In addition, many teachers are now reaching retirement age and leaving the teaching profession. The coming years thus represent a turning point, involving both great risk, but also a great opportunity to help develop the next generation of teachers.

We have learned that other countries that have succeeded in significantly improving their educational achievements invest primarily in teachers and the quality of their teaching. In Israel too, there are outstanding mathematics and science teachers who work relentlessly for their students. Therefore, clearly any attempt to improve educational achievement must be based on these outstanding teachers.

From data and research, we conclude that expanding the circle of excellence is a goal that is within reach. Our working assumption is that despite frequent changes of government, all agree that the advancement of excellence takes priority, and we may rely on continuity in policy. We therefore believe that Israel has a good chance to succeed in stemming the decline in mathematics and science studies.

However, the coming years will prove crucial in determining whether the education system, in its goal-setting of excellence, will rely on teachers to lead the professional

process, to develop and spread their professionalism from the inside, and to spawn a new generation of excellent teachers. If this happens, the decline in excellence will be transformed into significant and sustainable growth.

A special role is reserved for philanthropy in this effort. Philanthropy should continue to act as a catalyst for innovation, for identifying and disseminating best practices for encouraging coordination and dialogue, and for driving implementation in widening circles. Together with the government and other educational organizations that accord top priority to this matter, all must work to ensure that Israel takes advantage of this opportunity.

### **WHY IS IT IMPORTANT TO EXPAND THE CIRCLE OF EXCELLENCE?**

In the 21st century, knowledge of mathematics and the sciences is important for contending with the world's problems – curing disease, supplying water and food, bolstering security, enabling prosperity and safeguarding quality of life. Graduates of the education system who completed their studies at a level of excellence in these fields are considered to be prepared for the challenges and opportunities of our generation, having demonstrated an ability to address complex problems in changing environments and devise innovative solutions for them.

In Israel in particular, excellence in the fields of mathematics and the sciences places students in a position of relative advantage as they begin their adult lives. As a country that has built its economy on science and technology, people with knowledge and ability in these areas can find fertile ground for applying their talents. Today, a quality matriculation certificate that includes five units in mathematics, English, and a scientific field is a springboard for acceptance into technological units in the army, prestigious departments in the universities, and employment at relatively high wages.

The study of mathematics and science at a level of excellence helps students to develop personal characteristics that are important for their future. It combines broad knowledge, in-depth understanding and a high level of thinking, and gives expression to attributes of creativity, innovation and initiative. The study of advanced mathematics and science develops learning habits that strengthen resilience, as it entails significant effort, investment of time, practice and persistence. It also involves planning, self-assessment, an emphasis on quality performance and on learning from mistakes, while fostering an ability to cope with difficulty and failure.

The expansion of excellence is also a social value, serving the objective of opening doors and narrowing gaps. Many students in Israel – in the center and periphery, Jews and Arabs, religious and secular, boys and girls – are capable of excellence, if only they are presented with the challenge and provided with quality teaching that is adapted to their abilities, difficulties, pace and style of learning. When these students fulfill their potential, they will build a better future for themselves and for their families, and will help ensure the strength and prosperity of the Israeli state and society.

### **WHAT IS EXCELLENCE IN MATHEMATICS AND THE SCIENCES?**

Excellence is a high level of understanding, thinking and performance in which students are guided by the knowledge and skills they have learned, using them intelligently and creatively to contend with a new and complex situation. This ability entails acquiring substantial knowledge, skills in analysis and in-depth learning, character traits of curiosity, initiative and communication, as well as moral values of individual and social responsibility.

Students at a level of excellence acquire:<sup>1</sup>

## **KNOWLEDGE**

- A. They gradually build a broad and in-depth foundation of knowledge that enables them to conceptualize, generalize, extract and implement, based on research they conduct and models they design for complex situations. They identify the various aspects of the problem, know how to precisely express and explain their choices and thinking, and utilize this to describe phenomena, solve problems and create new knowledge.

## **SKILLS**

- B. They develop logical, spatial and algorithmic thinking, as well as creative and critical thinking. They are capable of planning and explaining an experimental array, while applying complex connections between fields, relations, sources of information and various representations. They easily translate between them; choose, compare and evaluate strategies for solving problems; and draw conclusions at a high level of abstraction.

## **CHARACTER**

- C. They enjoy challenges and solving problems, assume responsibility for learning, are ready to persist, invest and practice, and are willing to face difficulties and pressure while demonstrating consistency, determination and patience. They learn from mistakes, are keen to contend with complex, open and unfamiliar situations, and employ resourcefulness, creativity and a high ability of interpersonal communication and cooperation.

## **VALUES**

- D. They set ambitious goals for themselves and seek the truth, solutions, success and breakthroughs, while internalizing the limitations of science and the principle of doubt. They demonstrate integrity, ethical conduct and fairness, and are tolerant and open to diverse opinions and to their own mistakes and those of others. They are aware of the moral responsibility that derives from the use of scientific knowledge and take action to improve the society in which they live.

## **THEORY OF CHANGE - QUALITY TEACHING:**

### **From Industrial to a Clinical Profession**

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<sup>1</sup> This definition is based on the products of the national initiative to strengthen science education (5\*2) and on the work of the U.S. National Research Council (2012) on the subject of *Developing Transferable Knowledge and Skills in the 21st Century*, definitions of levels of excellence in the OECD's PISA examinations, the Israeli curriculum in mathematics, physics and chemistry, and analysis of new curricula in a number of countries around the world.

High-performing education systems invest primarily in teachers and in their teaching. They decided to do so after numerous failed attempts to improve education by instituting changes outside of the classroom. Their investment in teachers is based on research indicating that the quality of instruction is the most influential factor in the classroom in explaining disparities in student achievement. Learning from their experience, the foundation adopted a similar working assumption which is that there is no bypass route for expanding the circle of excellence in a continuous and sustainable way, without investing in the professional ability of the teaching corps.

We noted that outstanding education systems in Western societies have transformed the teaching occupation from a blue collar production line trade to a clinical knowledge-based specialization, from teaching that is focused on the material to teaching focused on the student. Clinical professions, which are highly attractive, are characterized by a high commitment to each “patient” that includes setting ambitious goals, a personalized program of “treatment,” diagnostics, prognosis, monitoring and feedback. In clinical professions, the practitioner takes an active role in a professional community, routinely consults with colleagues, participates in clinical rounds and residency programs, and is involved in mentoring and coaching.

We believe that quality teaching with clinical characteristics may be of value for every field of study and in all grade levels. However, it plays a special role at the level of excellence in the study of mathematics and science. Since these are abstract fields that are considered difficult to teach and learn, where knowledge and skill are built together, teachers need to instill a learning climate of practice, persistence and, deeper learning, higher order thinking and knowledge transfer. The ability to simultaneously encourage many students to learn, persist and succeed is, therefore, a very challenging mission.

**High quality teaching** of mathematics and science is based on individual excellence and is methodically and systematically implemented, with careful planning, performance and self-awareness. It is executed in a professional community, with ongoing consultation and a focus on the progress of each and every student. This type of teaching identifies the abilities and difficulties of each student, sets ambitious goals with them, adapts the teaching to the student’s way of thinking and pace of learning, monitors progress and provides the student with constructive and supportive feedback.

Individual excellence of the teacher is a prerequisite for quality teaching. Outstanding teachers come from the top third of university graduates and bring with them in-depth and broad knowledge, as well as solid confidence in the subject matter area and its connection to related fields and to everyday life. They exemplify excellence in their conduct, keep up-to-date with innovations in the field of knowledge, read scientific and pedagogical publications, participate in conferences and seminars, and write, document and publish insights from their work and experience.

Quality teaching in practice is a clinical skill that focuses on providing a personalized solution to each student. It takes place in three arenas of interaction - with the student: the classroom and the community of teachers. It is characterized by reliance on openness, cooperation and trust; continuous diagnosis of the students’ learning; individual adaption of teaching to the abilities, challenges, style and pace of each learner; and by aiming for continuous improvement of teaching and learning performance.

Outstanding teachers<sup>2</sup>:

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<sup>2</sup> Based on the standards for quality teaching of mathematics in Australia (2006), English teaching standards (2012), teaching standards for mathematics of the National Council of Mathematics Teachers and the National

- a) Believe and are convinced that all of their students are capable of excelling; demonstrate a profound commitment to making the most of the opportunities that stand before them; set high and attainable individual learning goals with their students; stir their curiosity and help them to become independent learners.
- b) Create an inclusive and confidence-building learning atmosphere in their classroom that allows for questions and mistakes, encourage the expression of knowledge and opinions in writing and speech, and stimulate intellectual risk-taking. They respect their students, nurture communication skills and creativity, and encourage collaboration.
- c) Have a practical understanding of how students think and learn the field of knowledge. They comprehend how knowledge develops among students and can identify misconceptions, ways of thinking, learning styles and developmental processes.
- d) Are proficient in the use of a range of assessment and evaluation techniques, and know how to adapt them to the context in which the learning takes place. They document the learning performance of each student in a comprehensive way and use this in real time to map, diagnose, adapt the teaching and provide constructive and reinforcing feedback.
- e) Use a wide arsenal of teaching approaches and methods, and exercise sound judgment in choosing strategies and techniques appropriate for the context, the learning topic, the classroom, and the diagnostic findings regarding each student.
- f) Give their students clear, constructive and supportive feedback in accordance with their learning performance. They choose the type of feedback and the appropriate time to present it, and they use this feedback to help students to internalize the learning goals and become aware of their progress.
- g) Take an active role in a professional community, which operates regularly under the leadership of master teachers and systematically analyzes classroom learning and teaching.
- h) Build together the professionalism of teaching, develop a shared instructional system, implement standards of evaluation, create support systems for student learning, and engage in peer learning that includes documentation, analysis, mentoring and feedback.

## **THE FOUNDATION'S LIFECYCLE**

### **Catalyst – Convener – Builder - Tutor**

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Council of Professional Teaching Standards in the US, the work of John Hattie of New Zealand on quality teaching (2003, 2011 and 2012), the work of the Israel Academy of Sciences on the necessary knowledge for mathematics teachers (2012) and reports by the Szold Institute on the teaching of mathematics and physics in Israel (2012, 2014).



The Trump Foundation will meet its objective only when high quality clinical teaching of mathematics and the sciences is firmly embraced by Israel's high schools. This will enable more students to choose, persist and succeed in mathematics and science majors, which in turn will open up opportunities for their future.

In order to set this theory of change in motion, in the first stage (2011-2014) the foundation focused its efforts on the professional community, serving as a catalyst for developing “building blocks” of clinical teaching. Efforts were concentrated on sounding the alarm in order to initiate a process of stemming the decline in the five unit tracks and launching training programs, professional development frameworks, and development of student-centered instruments and methods.

In the second stage (2015-2017), in order to provide the support necessary for quality teaching, the foundation began to act as a convener, helping to seed partnerships, forge professional networks, create knowledge and motivate to action. This effort is designed to enable effective alignment between policy, research, public opinion and practice, and to lay the groundwork for significant growth in excellence.

In a third stage (2018-2022), the foundation intends to work as a builder, in order to spark the establishment of professional and organizational infrastructure that support implementation at scale. For example, we will examine the opportunity of establishing an Institute for Advanced Teaching that will serve as a professional home for master teachers; recruiting an “elite corps” of experts to support quality teaching in schools; a one-stop-shop for guiding the effort to training new teachers; and an intermediary organization to share knowledge between municipalities that prioritize the study of science and mathematics.

In a fourth and final stage (2023-2025), the foundation will act as a tutor, preparing to complete its role and working to remove the philanthropic scaffolding. In this stage, we will help the system and the professional community to ensure continuity and sustainability, and complete the documentation and evaluation of the foundation to enable learning and drawing conclusions from its activity.

In this manner, which includes programs, amplifying activities, and professional infrastructure, we believe that the foundation’s strategy could be successfully realized and remain deeply rooted in the system over the long term.

## PROGRAMS

### 1. Access to Opportunity

*Providing better access to five units of study while training a new generation of teachers*

Many students say that quality teaching made all the difference for them and note that their attraction to a particular subject can be largely attributed to an outstanding teacher. Often, this is also the reason they choose to major in a specific path of study. When students are asked what makes these teachers outstanding, the same answers are given: “They knew how to connect to me, they identified where I was having a hard time and how I think”; “They set ambitious goals with me, taught in a way that I could understand and supported me along the way, believing in me and not giving up.”

In fact, there are excellent mathematics and science teachers in Israeli schools. They include outstanding teachers who are top-rate professionals, with rich and in-depth knowledge, quality teaching skills, character of excellence, values of commitment and a sense of mission. A central objective for them is to ensure that many students choose, persist and succeed in their studies at a level of excellence, and they provide each student with an individual response adapted to his or her abilities, difficulties, style and pace of learning.

However, a substantial number of teachers are now approaching retirement age, including many who immigrated to Israel from the former Soviet Union in the 1990s. Consequently, there is a severe shortage reflected in the closing of study tracks and assignment of unsuitable teachers from the school teaching staff. In 2010, of the 1,129 schools in Israel whose students took matriculation exams, only 520 schools offered a five-unit track in mathematics and 484 in physics. This means there is an untapped potential for excellence in Israel – in central Israel and in the periphery, among Jews and Arabs, religious and secular, girls and boys.

This is an enormous challenge, but also a great opportunity. There is a need to help the education system develop its next generation of mathematics and science teachers. This is an opportunity to make sure that those new teachers are excellent and that they receive the best training and coaching. The building of this teaching generation is a ten-year process whose scope is a function of the prospective growth in the number of students. In addition to the long term effort and due to the relatively long period of time required to train new teachers of five units, there is an immediate need for remote teaching for students in schools that currently do not offer five units of study.

At the start of its work, the foundation posed a threshold question: “Are there enough excellent people who would be willing to fill the shoes of the veteran teachers?” It soon became clear that the conditions for this are ripening. The public concern for the future of education, the new salary agreements for teachers and the increase in the education budget - all contributed to initial signs of an upturn in learning achievement. Concurrently, there is an increase in the demand for teacher training programs in general, and in the fields of mathematics and science in particular.

From a survey performed for us by the Dachaf Institute, we learned that many of those who are considering making a career change to teaching mathematics and science have special characteristics. They include a significant percentage of people over 35 years of age, from central and northern Israel, who have a degree in science or mathematics and pursued a career in their field of specialization after completing their academic studies. Now, they have reached a stage in their lives in which they are interested in becoming

teachers. Their main motives for this career change include a love of science, a sense of social mission, an aspiration to balance work and family, and job security.

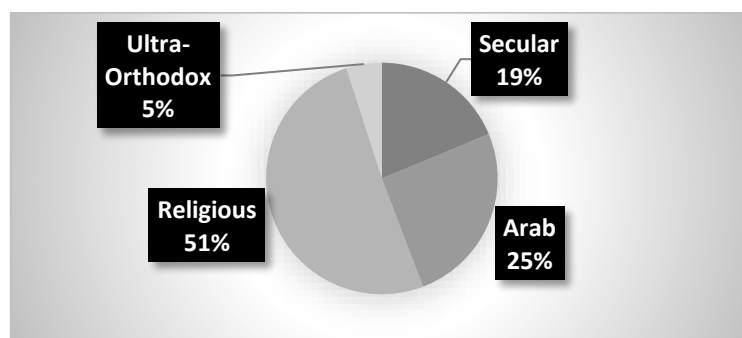
In addition, and as the foundation deepened its work, we found that the differences between different communities and groups in Israeli society require us to focus our efforts to adapt the solutions to diverse contexts. In light of these needs and opportunities, we are moving forward in four complementary steps. Their overall objective is to help the education system stem the downward trend and significantly increase the number of students who choose to study in five-unit tracks:

- A. **Distance learning in schools that lack a teacher.** In Israel of 2012, there were a significant number of students interested in and capable of studying five-unit mathematics and science, yet they did not do so because their schools did not offer these classes. This situation resulted from the fact that many schools are unable to recruit teachers, or due to the small number of students, they cannot justify opening a class.

The solution to this problem is to train a new generation of excellent teachers. However, the process of professional training and development of teachers is long-term. In addition, the work conditions of small schools in distant locations mean that they have difficulty opening these classes, and this situation is expected to continue. Thus, in order to expand access to opportunity for students in these schools, distance learning must be made available to students who are ready to accept the challenge.

For students studying at schools that do not offer five units of these subjects, the Center for Educational Technology, the Ministry of Education and the Trump Foundation founded the “Virtual High School” with a joint investment of over 50 million NIS.

In the 2015-16 school year, some 900 students from 128 schools throughout Israel studied at the Virtual High School. Each student is paired with a college student who tutors them, assists them with exercises and comprehension, and encourages them to make the intensive effort needed in order to succeed. This provides students in small and peripheral schools with the opportunity to study and succeed in the five-unit matriculation track in mathematics and science.



- B. **School-based Teacher Training Programs.** According to a survey performed for the Trump Foundation in 2012 by Dr. Mina Zemach of the Dachaf Institute, 8.6% (one out of twelve) individuals with relevant academic credentials answered “definitely yes” when asked if they would seriously consider changing careers to teaching mathematics and science in high school.

Considering this, the foundation, the Ministry of Education, and the academic training institutions decided to work together to offer special, exclusive career retraining

programs to high performers and most appropriate candidates of those expressing interest.

In these programs, efforts were made to apply the lessons of the “career retraining for academics” that was offered to high-tech employees following the global economic crisis of 2008. Accordingly, acceptance to the new programs is based on demanding requirements, and follows a competitive selection process. The emphasis of the training programs moves from the campus to the school, based on the clinical model in which the students try their hand at teaching, with the close guidance of expert teachers. Graduates receive special assistance for placement in schools and professional support by experienced teachers.

Up to 2015, the foundation has invested some 21 million NIS in twelve such programs, training 775 mathematics and science teachers:

- Ten “residency” programs located throughout Israel, through Tel Aviv and Haifa Universities and the academic colleges of Levinsky, Oranim, Beit Berl, Kibbutzim, Achva, Herzog, and Al-Qasemi.
- “Hotam” program, a special track for 150 mathematics and science teachers, focusing on advanced teaching skills, with extended pedagogic and disciplinary guidance.
- “Teacher-Researcher” program, in which scientists from Hebrew University teach in high schools in Jerusalem while continuing scientific research.

- C. **Placement of New Teachers and Coaching their Induction into the School.** Recruitment and training of excellent individuals for teaching are vital steps, but are not enough to ensure that supply and demand will meet successfully. In order to ensure placement and absorption of new teachers, special efforts are needed. The new teachers should be treated as individuals with special talent who have answered the national call. Accordingly, human resources processes must be managed carefully and with sensitivity.

During the training period, a shared language must be constructed between the student teachers and the school culture. We strive to ensure quality placement processes for the new teachers, work with the government to adapt their salaries to recognize their professional experience and provide adequate teaching certificates. In order to support their induction, pedagogic support is offered to them from experienced teachers.

- D. **Providing Access to Underrepresented Communities.** The potential for excellence is found throughout Israel – it is not limited to a certain region, community or gender. Therefore, our efforts are “color-blind”, as we strive to make quality teaching accessible to every type of student. However, as the foundation deepens its activities, we have found that the differences between communities and groups in Israeli society reveal that a uniform solution is not in all cases appropriate for all.

We have found that different communities and groups have different methods of coping with the challenge of excellence. For example, fewer female students choose to study physics and computer science; in the national religious sector, fewer students study chemistry; in Arab schools, clinical teaching has unique barriers; and in ultra-Orthodox schools, mathematics and science studies are particularly sensitive. For this reason, an in-depth study of each community led us to prepare special programs, so

far on a small scale. In cases in which we will identify significant potential for excellence among these groups, we will attempt to increase our efforts with them.

**We anticipate that these steps will lead to the training of 1,200 new teachers, half of whom will become teachers of five units in all communities and regions; 200 new five-unit classes for physics and mathematics will be opened throughout Israel; and they will be joined by 950 students annually who will study through distance learning. As a result, we estimate an increase of 75% in students choosing to study five units in mathematics and physics by 2021.**

## 2. Nurturing Clinical Teaching Expertise

*Helping teachers support their students' learning by developing a student-centered practice*

Students who choose to learn in a five-unit track in high school face a tall hurdle. Many are talented students who are accustomed to excelling in all fields of study, almost without effort. Suddenly, sometimes for the first time in their lives, they are required to invest, persist, practice and contend with difficulty. Since knowledge and skills are acquired together in these fields, a gap that develops at the beginning is liable to widen and deepen, leading many students, including a high proportion of female students, to drop out of the excellence track.

In this situation, the teaching method plays a particularly important role. Nonetheless, teachers note that in practice they are forced to implement a selective teaching approach that is suitable mostly for students who succeed on their own. Teachers say that the message they used to receive from the school administration, which was traditionally interested in ensuring eligibility for matriculation, is that they should not “take a chance” with students who are experiencing difficulty. In addition, there is the pressure of the curriculum and the examination. All of these factors push teachers to advance quickly with the learning material and accept as a given that many students will drop out along the way.

However, teachers who did not give in to the circumstances and are eager to assist all of their students to successfully complete the five-unit track, note that this task entails practical difficulty. They say they need to find a balance between the desire to push the class toward in-depth study and thinking, without compromising the level and pace, and the need to provide an individual response for each struggling student in real time. These teachers say they lack the pedagogic tools to support teaching that is adapted to the pace, style, abilities and difficulties of each student in the classroom.

In light of this, the Trump Foundation is helping to promote a teaching expertise that focuses on the student's thinking and learning. Our aspiration is to enable teachers to set personalized goals and milestones with each student, and to adapt their teaching while tracking progress and providing feedback. The foundation works to help teachers observe their students' learning, examine their own teaching performance, learn from practice, acquire professional knowledge and jointly advance their professional development.

Pursuant to these objectives, we strive to assist teachers in using diagnostic practice and employing work routines that are similar to those exercised in clinical professions. This change in practice centers on classroom pedagogy that is adapted to each student's learning style, and is best achieved with the support of a professional teacher learning community.

- A. **Professional communities.** Teachers are lone actors – the door to their classroom is closed, and they learn largely from their own experience. They seldom attend professional development courses, because they do not value the contribution of outside experts who merely “run through the material.” Professional development that is offered to them typically reflects the approach that the important knowledge on teaching is not in the hands of those who work in the field. By contrast, in clinical professions, professional knowledge is built together, on the job and by the practitioners themselves.

To change this habit, the foundation aims to catalyze and assist the building of professional communities of teachers, led by master teachers. We believe that an effective professional community is one that systematically focuses on student learning, relies on documenting and analyzing the learning in classrooms and its interaction with teaching, formulates a shared and coherent instructional system, builds routines for monitoring students’ learning, and provides mutual assistance for improving the practice of teaching.

Until 2015, with an investment of some 17 million NIS, and with the support of the Weizmann Institute, Haifa University, Branco-Weiss Institute and Kadima-Mada, and with the cooperation and support of the Ministry of Education, we have established:

- Regional communities for some 1,000 teachers throughout Israel, divided by subject matter: communities for physics teachers, mathematics teachers, and chemistry teachers.
- School-based communities for 300 mathematics and science department heads and teachers in middle schools and six-year senior schools.

- B. **Diagnostics and personalization.** Traditional teaching is focused on the educational material. The conventional visual image depicts the teacher facing the blackboard and “delivering” the lesson, exercise or chapter in the book, while the students are expected to understand on their own and pass the test successfully at the end of the semester. This is a caricature of an “industrial” approach, in which the students who have difficulty drop out through natural selection, with only the survivors remaining in the classroom.

In order to assist teachers who are interested in taking responsibility for reducing the dropout rate, they require a different pedagogical approach – one that is clinical, meaning focused on the students’ learning. This approach relies on diagnostic instruments that teachers use to evaluate the abilities, difficulties, thinking and progress of each student in real time. Based on this evaluation, teachers may want to develop individualized goals and personalized learning program for each student, adapt their teaching and provide constructive, reinforcing feedback.

In order to develop optimal tools for mathematics and science teachers in middle and high schools, the foundation is cooperating with academic research and development centers. With an initial investment of some 10 million NIS, we established development teams at Weizmann Institute, Tel Aviv University and Haifa University. These teams are cooperating with expert teachers who are testing the tools in their classrooms. Each team specializes in a field of knowledge, an age level and specific work method.

- C. **Interaction between Teaching and Learning.** Traditional teaching and learning take place in isolation inside the four walls of the classroom. Naturally, the teacher can focus only on some of what happens during the lesson, and reconstruct from memory only certain events. The pace of the lesson, the number and diversity of students and the professional need to make many instantaneous decisions, create a situation in which it is very difficult to focus on multiple learning processes simultaneously.

Therefore, teachers need methods for zooming in, capturing, and examining the nuts and bolts of their practice. For example, videotaping of classroom teaching and learning enables teachers to observe their own practice from a perspective of analysis and study. In this way, teachers can cultivate their professional development by themselves, while focusing their attention on the interaction between their teaching and student learning.

For the past four years, the Trump Foundation has been advancing teachers' learning through observation of video-taped classes. The foundation's flagship program is "Adasha" (Video-LM) at the Weizmann Institute. With assistance of grants of 6 million NIS, the leaders of the program established a database of teaching videos for five-unit mathematics. A development team composed of expert teachers and researchers analyzed the videos, and built a website as well as a program for training instructional coaches who use the material in professional development courses across the country.

In order to encourage wider usage of video-taped classes for teacher learning, the foundation approached the Israel Academy of Sciences and Humanities and convened a study group of researchers, practitioners and policy-makers, to jointly learn of developments in this area in Israel and around the world. Following the report that they wrote, the Ministry formulated a program encouraging the integration of video in professional development processes for experienced teachers.

At present, we can see first buds of broader use growing gradually. "Pisga" professional development centers and a number of foundation programs have cautiously begun to try out the use of video, both in teacher training and in professional development programs, as well as through regional video clubs and teacher communities.

- D. **Master teachers.** In clinical professions, practitioners rely on senior-level professionals who lead teams and mentor new and veteran practitioners. The teaching profession however, currently stands at the junction between a blue-collar trade and a knowledge-based clinical profession. We are in a transition point between a reality in which each teacher operates separately, and a situation in which expertise in teaching develops collaboratively from within, based on knowhow and practice.

Master teachers are key to the success of this process. Their teacher colleagues consult with them on professional questions and they lead their communities of practice and learning. Therefore when they are given a significant position, the conditions for clinical teaching to flourish increase.

In order to assist this transformation, the foundation founded the "Trump Master Teacher Award," as an annual prize which is granted by the Prime Minister of Israel recognizing the important role of master teachers of mathematics and science. A

100,000 NIS prize is given to great teachers, chosen by a professional committee, based on standards of excellence in clinical teaching.

However, since the role and function of master teachers are still informal, the foundation, in cooperation with the Minister of Education and Yad Hanadiv, approached the National Academy of Sciences, in order to study the issue and make recommendations. A team chaired by Miriam Ben Peretz and Lee Shulman presented a set of recommendations, which are incrementally implemented.

**Each of these steps is highly ambitious. Initially, our focus was to work with each of our partner organizations independently and in clusters so that their efforts are aligned with the idea of clinical teaching. We sought to jointly learn from their accumulated experience about how to generate a more detailed and practical definition and standards. In the coming stage, we plan to encourage them to collaborate with each other so that the various components of clinical teaching are effectively integrated. The idea of establishing an *Institute for Quality Teaching*, which would encompass all of the components of clinical teaching and serve as a professional home for master teachers, might be an appropriate professional infrastructure for this.**

**We anticipate that these efforts will enable half of the mathematics and science teachers in middle and high schools to take an active, regular part in professional communities led by master teachers. Together, they will develop skills for clinical teaching, while using the findings of diagnostic tools and video films. As a result, we anticipate a 20% reduction in the dropout rate from mathematics and physics classes, while maintaining the high level of learning.**

### **3. Inspiring Systemic Improvement**

*Creating partnerships and support networks for excellence in teaching and learning at scale*

The study of five units in schools does not occur in a vacuum, and there is constant competition for students' attention as they study many fields of knowledge and engage in social activities – all at the same time. The school's management, teachers, guidance counselors and the parents – all influence students' ability to choose, persist and succeed, and also affect the teachers' ability to provide quality teaching. This is a situation in which the school system plays an important role, in which its objectives, values, culture, professionalism and leadership manifest themselves.

From experience in Israel and elsewhere, we have learned that high quality teaching can flourish and the potential of each student can be realized only when the entire school staff works in coordination, focused on a clear instructional system that aims for shared goals. Such effective schools hold an ambitious vision of the future for their students; they inculcate the aspiration for excellence in the staff and in the educational climate; they implement regular routines of diagnostics, monitoring and feedback; they involve the parents regularly and openly; and they operate a professional community that assumes responsibility for improving the service offered to each student.

Factors external to the school are also very influential. Schools in Israel belong to a local authority or a school network, and are supervised and instructed by district and staff units of the Ministry of Education. These entities play a role in pedagogical, budgetary and organizational decisions, and in assessing the school's performance. Therefore, we



assume that for implementation of quality teaching at scale to take root, the foundation must act in close partnership with these entities to assist them in weaving an effective support network for teaching and learning.

There is also a wider circle of players, including the national government that defines policy, allocates resources, supervises and measures; and the “clients” of the education system in the army, academia and the labor market, which express their needs and set their entry requirements. Systemic change is more likely to be sustainable when there is close alignment between these entities in pursuit of a shared vision, objectives and measures.

Thus, the Trump Foundation set itself the goal of working in collaboration with the education system at all levels, in order to generate an energized momentum and alignment around a shared goal of expanding the circle of excellence.

Therefore, we are working in four arenas of activity:

- A. **Clinical teaching in school.** In schools that are successfully developing quality teaching and expanding the circle of five-unit mathematics and science students, the value of excellence permeates the organizational culture. The value of excellence is expressed in the manner of conduct of everyone at school, the high objectives and standards it sets, and the formal and informal interactions and messages. These schools define a shared instructional system, focusing on it in the collaboration of staff members and parents around the learning of each student.

For this challenging purpose, schools require management routines and pedagogic tools that operate in tandem, including the formation of school-based communities of practice, individualized learning plans for students, formative assessment tools, and more.

- B. **Partnerships in the field.** In Israel, local authorities, school networks and Ministry of Education districts are the entities responsible for the high schools. These proprietary and supervisory relationships play a reciprocal role with schools in the definition of objectives, allocation of resources, measuring progress and giving feedback. Particularly in the fields of mathematics and science, in which there is a lack of teachers, science infrastructure and equipment, a collaborative approach of shared vision has the opportunity to pool resources and create a multiplying effect.

For this purpose, the foundation is partnering with local authorities, networks and districts that have defined ambitious, specific goals for the advancement of excellence in mathematics and science, and are prioritizing and dedicating resources to this issue. These partnerships focus on the growth of clinical teaching, by appointing a senior teachers to lead professional communities of teachers, building individualized learning plans for each student, and executing rigorous feedback loops.

As of the beginning of 2016, with an investment of 21 million NIS, collaborative ventures have been formed with nine cities (Ashdod, Haifa, Ra’anana, Bat Yam, Sachnin, Herzliya and Rishon Lezion, Petach Tikva and Be’er Sheva), five networks (ORT, Amal, AMIT, Darcha and Branco-Weiss), and four districts (North, Central, Jerusalem, and the Ultra-Orthodox District).

- C. **A National program.** The Trump Foundation concentrates its expertise and resources in teachers and their instruction. This decision relies on evidence from research in Israel and globally, on the importance of teaching quality for students’ success. However, the success of teachers also depends on other elements, such as student motivation, system incentives, the professional support and infrastructure.

Therefore we recognize that moving the 'excellence needle' is a complex target located far beyond the capability of an individual organization or a specific program.

In order to spark a joint effort we joined hands with the Ministry of Education, the Rashi Foundation and Intel, and asked 'Sheatufim' to serve as a backbone organization for a collective impact endeavor to expand the circle of excellence in science education in Israel ("Five Times Two"). Dozens of educational organizations, local authorities, school networks, hi-tech companies, school principals and teachers have joined. Together they analyzed the causes of the decline and defined shared vision and goals, which set the basis for a national program which is now being implemented.

- D. **Out-of-the-Box Approaches.** Our efforts rely on best practice and its deep and wide-scale implementation. We believe however that we should stay attuned to experimental and innovative initiatives which are budding in the fringes of the system. These initiatives sometimes challenge the accepted norms and offer other models for teacher communities, diagnostic methods, teacher training and school intervention. If we close the doors to them, there is the risk that even when some of these approaches achieve success they remain in the shadow of the system-wide effort.

Therefore, we invest in controlled small scale experimentation of various approaches and assist them in checking their feasibility and educational contribution.

**We anticipate that these activities will lead to the absorption of individualized learning plans and matriculation excellence measures in 300 schools; the implementation of joint ventures, which advance quality teaching and bolster excellence in all districts and networks and in thirty-five local authorities; and an ongoing and firm execution and establishment of the national program. As a result, we estimate that within a decade, the number of graduates of five units in mathematics and physics in Israel will be doubled.**

## **AMPLIFYING ACTIVITIES**

The foundation programs that were presented in the previous section, represent a vital stand-alone elements. But as independent efforts, it would be hard for them to succeed on a long term and systemic level. In order to enable them to connect harmoniously, the foundation has created a range of supportive "amplifying activities" which include three main areas:

### **4. Catalyzing a Social Movement**

*Sparking public momentum for investing in excellence in teaching and learning of mathematics and the sciences*

Experience of high-performing education systems in the world indicates that talented people choose to teach when they feel support and trust from the public and its leaders. They continue to teach when they are convinced that their work is fruitful and when they feel that they are perceived as top-rate professionals, serving as pioneers and public emissaries of an important social mission. This insight from the world has great relevance for education in Israel in general, and for the process of developing a new generation of

mathematics and science teachers in particular.

The decision by students to choose five units (and the extent of parental encouragement and support for this decision) depends on social and cultural perceptions. The motivation to invest, work hard and persist in a difficult track of studies increases when the individual incentive and national importance are clear. The inclination to excel is reinforced when students sense they are part of an “elite group” and are gaining knowledge, skills and expertise that will open doors for them in the future.

The education system is also affected by social perception. Politicians and officials are attentive to the public mood; and when the media spotlights a certain area of need, they see this as a call from the public to take measures to resolve the problem. The closer the public eye follows an issue, the more dialogue there will be between the public and its representatives, helping to ensure that decisions are implemented and applied persistently, and that the focus on improvement will not waver.

The Trump Foundation has adopted a media strategy aimed at generating awareness and identification, and driving public momentum for investing in the teaching and learning of five units in mathematics and science. Initially, we emphasized the downturn in five-unit learning and the urgent need to take action. In a second stage, we called on talented people to become teachers, and to introduce quality teaching to the public. Recently, and in order to support a growing pipeline of five unit students we addressed parents and students and encouraged them to choose and persist in five-unit tracks.

The foundation operates three distinctly branded media efforts, while coordinating and creating synergy between them:

- A. **BROADCASTING INFORMATION.** Although teachers work daily at the forefront of education, public discourse on educational issues is often held above their heads. As a result, the public is often unaware of the professionalism of educational practice, and the image it ascribes to teaching relies on limited evidence.

For this reason, we identified a need to offer an inside view. We expose the public to stories from within classrooms and schools, place excellence in teaching and learning on the agenda of public dialogue, and amplify the voice of teachers in the public discourse.

- B. **DIALOGUE AND INTERACTION.** The rise of social networks has created an opportunity to promote a rich educational dialogue in which the users of knowledge are also partners in generating it and distributing it en masse. Subscribers define their fields of interest, prioritize the topic to be discussed, and interact with one another. When they share values and goals, this continuous dialogue may turn into a stronger bond, sometimes transforming into a social movement.

For this purpose, the foundation has established the “Higia Zman Hinuch” (“It’s Education Time”) community, which today numbers over 40,000 active Facebook members. This community led to the creation of a digital magazine, which rapidly became the largest and most popular educational magazine in Israel, with over 200 member authors. They routinely publish articles that highlight clinical teaching practice and perspectives on excellence in mathematics and science education.

- C. **CALL FOR ACTION.** In order to mobilize members of the virtual community for activity outside the internet, the foundation offers a series of activities. For examples

- the Musrara School of Visual Arts set up an exhibit at the Jaffa flea market focusing on teachers and teaching; “Teachers on the Bar,” is a series of events in trendy bars where mathematics and science teachers give lessons to the public; the first TEDx conference in Israel on mathematics and science teaching was held at the Weizmann Institute of Science in May 2014; and a new holiday was created in Israel, following an international initiative, celebrating an annual “Teacher’s Day” in cities, schools, and youth movements throughout Israel and in the Knesset.

**We anticipate that these activities will lead to publication of some one hundred related items via a variety of traditional media channels each year. The “Higia Zman Hinuch” community will reach 50,000 members, and each year five special events will be held that create an encounter with teachers and their teaching and with mathematics and science learning. These efforts will gradually generate a public sentiment that will be expressed understanding, support and backing to advance excellence in the teaching and learning of mathematics and science.**

## **5. Connecting Partners**

*Weaving professional networks of joint learning, shared resources and collaboration*

The foundation’s grant portfolio is built of programs that operate independently, however they all share common objectives – to nurture quality teaching and expand the circle of excellence in mathematics and science. This common denominator creates a special need for collaboration between them in order to coordinate the division of labor, develop shared standards, pool resources and collaborate. We believe that such collaboration will boost the effectiveness of each program, while strengthening their collective impact.

In a survey of partners and grant recipients the foundation conducted in 2014 through the Center for Effective Philanthropy, 3/4 of the respondents emphasized that they expect the foundation to function not only as an organization that approves monetary grants, but also as a professional entity that works to facilitate collaboration among its partners. They noted that they would greatly benefit from a variety of professional encounters, ranging from small group workshops focused on a specific issue to broader meetings for sharing knowledge.

The foundation sees its role as one of catalyst and convener, and holds high expectations for the professional community it works with on several levels. We see the professional community as not only a means for maximizing the effectiveness of programs and projects, but also as a platform to build capacity and disseminate knowledge within the organizations and systems. When the foundation concludes its grants and activity, the professional network will have an important role to ensure the continuation and sustainability of the agenda and activity the foundation helped them develop.

Therefore, the foundation role of a convener concentrates on organizing three types of professional networks:

- A. **CLUSTERS.** Each step that is articulated in this paper represents a set of programs which function to promote similar goals, such as the diagnostic assessment programs, the partnerships with municipalities, etc. In order to facilitate joint learning, define shared standards and pool resources between similar programs, we

begun to convene them on a routine basis.

For example, teacher residency training programs that operate throughout Israel regularly convene for joint learning. Their leaders went on a study trip together to the US, where they visited corresponding programs and upon their return held a joint international conference. Together they defined shared standards for their programs, which serve as a basis for a dedicated website called “Hora’ah Plus” a shared portal to jointly attract potential applicants.

- B. **EXCHANGE FAIRS.** A wider perspective reveals the foundation programs operate across a ‘production chain’ from development to operation. There are grantee organization which develop methodology, others that provide services, and those that are in charge of execution. To ensure that the supply and demand meet more effectively, we decided to create opportunities for this ‘marketplace’ to interact.

In these ‘fairs’, the developers present prototypes and findings of pioneering experiments. Service providers demonstrate case studies from the field, and proprietors define needs, opportunities, and limitations. In a shared dialogue, all sides search for shared ground, adapt, fine-tune, and construct joint activity.

- C. **AFFINITY GROUPS.** In different foundation programs there are key personnel who share a professional common denominator. While each one serves in a different organizational environment, there is great potential for an ongoing professional dialogue between them. Such a shared dialogue will enable them to better conceptualize their work, define mutual professional standards, and weave inter-institutional partnerships.

We therefore decided to convene key individuals, including heads of organizations, leaders of teacher communities and teacher mentors, in order to learn from each other and to promote professional dialogue across organizational lines.

**We anticipate that this convening will include the formation of ten clusters conducting regular encounters every year; six annual meetings for connecting between supply and demand; and six annual meetings for affinity groups. As a result, we expect a rise in the feeling of ownership and shared responsibility among members of the professional community that will be expressed in future collaborative activity.**

## **6. Creating a Shared Language**

Generating professional discourse based on a clear and agreed upon knowledge-base and terminology

The Trump Foundation’s strategy assumes that clinical teaching can significantly contribute to the learning of high school students at the advanced levels of mathematics and the sciences. For this idea to materialize there needs to be a clear understanding and agreement about what clinical teaching actually means. The foundation’s team, its partners and the professional community must share an in-depth perception about the necessary ingredients that comprise it and pursue them together.

In other words, if the foundation is to succeed in its mission, there must be effective

coordination between those participating in this work, based on a mutual understanding of the activity and its components. It is therefore essential to ensure that professionals use accurate language which relies on a foundation of knowledge drawn from both practice and research. The public at large also needs a clearer understanding of what turns teachers into top rate professionals, in order to boost its support for teachers and confidence in their teaching.

The role of capturing and disseminating knowledge and knowhow is a role that philanthropic foundations in the world have begun to take on in recent years. They concluded that they also need to document and evaluate their activity, in order to allow for learning of what “works” and what is less successful, in order to enable others to learn and enjoy the fruits of what foundations and their partners have learned and experienced.

Since the Trump Foundation wishes to showcase best philanthropic practice, we operate to advance the knowledge in our area of activity in three dimensions:

- A. **CLINICAL TEACHING.** In order to base our work on evidence we keep are keeping track of studies from Israel and abroad. From time to time we choose to translate important pieces into Hebrew, make them available to broad audiences and generate discourse around them. So far we have established an online library on the foundation website comprised of select items; translated several books and articles together with the Branco-Weiss Institute and Yediot Publishing; and created infographic designs to highly relevant research findings.
  
- B. **DOCUMENTATION.** The foundation operates a grant-making arm, collaborates with government, convenes its partners, engages the media and creates knowledge. These diverse activities must be documented and reviewed from various perspectives. For this purpose we asked experts to prepare a series of case studies and turned to the Center for Effective Philanthropy in 2014 and then again in 2016. CEP surveys provide feedback among foundation grant recipients and partners world-wide, examining areas relevant to the foundation’s work that predict the rate of success in implementing its goals.

Below are the main findings:

- Almost 90% of the foundation partners believe that its objectives can be achieved.
  - Most of the participants indicated that the foundation’s strategy and focus represent significant points of strength.
  - Many noted that in addition to the grant, they received non-financial assistance from the foundation.
  - Some 75% are interested in additional meetings with grant recipients and partners.
  - The Trump Foundation received the highest rates in the past decade among other foundations for its relationship with grant recipients.
  - The foundation’s impact on public policy was average in 2014, climbing very significantly to the top of the chart by 2016. However, its impact on grantee organizations remains very low.
- C. **Evaluation.** Hundreds of initiatives and dozens of organizations comprise the changing course of mathematics and science learning in Israel. Their accumulative effort creates conditions that enable more students to choose, persevere, and

succeed in five unit studies.

External experts are using shared cluster evaluation to assess the foundation activity in these areas, measuring three outcomes: the increase in students graduating five-unit tracks; the trickle-down rate of programs, tools, concepts and methods into the system and its institutions; and the creation of long-term infrastructure to ensure sustainability, after the foundation's grant-making term.

**We anticipate that these activities will lead to the establishment of a knowledge base of 100 items of research and reports on clinical teaching, comprehensive biennial reports of the foundation's performance, ten case studies that will shed light on various aspects of our activity, and ten cluster evaluation reports of the foundation's main strategies. This will help establish a shared language for the professional community and the public.**

