

**EDUCATION IN ISRAEL: DIVIDED SOCIETY,
DIVIDED SCHOOLS**

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January, 2017
Washington DC

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I. INTRODUCTION: ISRAEL'S KNOWLEDGE CAPITAL

Israel's achievements in science, technology, and culture are impressive. Israel has one of the highest ratios in the world of scientists and engineers in its labor force. Its ratios of patents, scientific papers published, and Nobel prizes awarded compared to population are among the highest in the world. Eighty-seven percent of its youth complete secondary education.² Israel ranks among the highest in the world in the percentage of the population with academic degrees per capita (46% of 25-64 year olds).³

Israel invests the highest portion in the OECD of its GDP in civilian R&D (4.1%), of which 40% comes from the Israeli private sector and 46% from investors from abroad.⁴ Over eight million Israelis buy 12 million books every year, making them one of the highest consumers per capita of books in the world. More than 90% of Israelis read a newspaper at least once week.⁵ The figures for film production, concerts attended, dance companies, and adult education classes offered are all very high compared to Israel's population. Israelis regularly win international awards in graphic arts, entertainment, and music.

It is surprising to most observers that the overall productivity of Israel's work force (as measured by GDP per hour worked) is lower than that of its competitors, including most of the OECD countries.⁶ It appears that Israel depends on a small cadre of innovative workers in high tech industries for its economic growth. In fact, both its competitiveness and its social cohesion are at risk in part because of the inadequacies of its education system. Learning achievement is below the mean of OECD countries and there are wide gaps in education performance between different socio-economic and ethnic groups. Israel's higher education system, while characterized by many scientific, artistic and cultural achievements, faces challenges of cost, equity, and quality. Complicating the scenario, Israel has separate school systems for its main ethnic and religious groups. This division both reflects and reinforces the tensions and distrust endemic to Israeli society.

Military service in the Israel Defense Force (IDF) plays a major role in building intellectual discipline, emphasizing achievement, and encouraging creativity and risk-taking.⁷ After youth leave the army they are more mature and career-oriented, become more serious in furthering their education, and are perhaps better able to link the practical with the theoretical in their studies. The IDF's custom of selecting the best and brightest high school graduates to work in the intelligence field has created a cadre of future high tech leaders. These young people have become the leaders in the high tech revolution. But the transforming experience of the army will touch a decreasing proportion of Israel's youth, in part because of the growth of population groups (Arab and Haredi) which do not usually enter the IDF.

This paper provides an overview of Israeli education from an international perspective. It is based on a wide variety of national and international sources as well as visits to schools and discussions with teachers, principals, leading educators and researchers. It pays particular attention to issues related to implications of the divided school system and to issues related to disadvantaged and minority groups.

² OECD, *Education at a Glance 2014*, Table A2.1a

³ OECD, *Education at a Glance 2014*, Table A13a

⁴ CBS, *Statistical Abstract of Israel*, No 65 (2014)Table 26.8

⁵ Ministry of Industry, *Intellectual Capital of the State of Israel*, p. 25.

⁶ Ben David, "Labor Productivity in Israel."

⁷ Senor and Singer, Chapter 4.

II. Description of the Education System

Israel's education system consists of six years of primary education, six years of secondary education (divided into three years of middle school and three years of upper secondary education) and three to five years of higher education. Pre-schooling includes one compulsory year of kindergarten, which is state funded, and two years of pre-schooling, for the most part state funded.⁸ Education is free and compulsory through 12th grade. As discussed below, primary and secondary schools are divided into four separate systems, secular Jewish (defined as Hebrew speaking "state" schools), religious Jewish, "ultra-orthodox" (Haredi), and Arab (defined as native Arabic speaking). The word "Haredi" means "fearing" or "trembling" and reflects the belief by this community in the centrality of religious belief based on the Torah and its rabbinic interpreters. "Ultra-orthodox" is the term commonly used by outsiders to describe the Haredim although it is considered derogatory by the community. The word "Haredi" (plural "Haredim") is used in the rest of this paper.

The Ministry of Education is responsible for school curricula, educational standards, supervision of teaching personnel, and construction of school buildings. Local authorities are charged with school maintenance as well as acquisition of equipment and supplies. The richer local authorities supplement state funding. Teaching personnel at the kindergarten and primary school level are ministry employees, while those in secondary schools are employed by local authorities, which receive funding from the Ministry according to the size of the school population.⁹ School principals are responsible for pedagogical issues in their schools and, especially in secondary schools, play a significant role in selecting staff.

Nearly all elementary and secondary schools are public or publicly financed. Over the last few decades, the government has allowed considerable diversity in the actual provision of schooling, with many schools acting to some extent as "charter" schools. At the secondary level, NGOs are often contracted to play a role in managing schools.

Attendance is by catchment areas for primary schools in the desired stream, although parents often find ways to circumvent this regulation, and by parental choice in secondary schools. A national completion examination, the "Bagrut," is given in the last two years of secondary education. National diagnostic testing (the "Meitsav") is given in selected primary and lower secondary grades.

Institutions of higher education consist of eight universities (Haifa, Hebrew, Tel Aviv, Bar Ilan, and Ben Gurion Universities, the Technion, Ariel,¹⁰ and the Weizmann Institute of Science¹¹), 58 colleges, of which 21 are public teacher training colleges and 16 are private, and a publicly funded "Open University" providing distance and part-time education.¹² A Council for Higher Education, chaired by the Minister of Education, provides oversight.

Israel's school-age population (aged 5-24) as a percentage of the population as a whole is 33%, a figure that is higher than nearly all OECD countries, where the average is 26 %, ¹³ a result of high birth rates in Israel, especially among Arab and Haredi populations. The total number of students enrolled in the

⁸ A recent law mandates free pre-schooling for 3-4 year olds but it has not yet been fully implemented.

⁹ This unusual arrangement is probably a result of concerns at the time the state was established aimed at ensuring universal primary schooling, as well as a common core, for purposes of national cohesion

¹⁰ Ariel University, established as a university in 2012, is located in the West Bank.

¹¹ The Weizmann Institute serves only graduate students.

¹² CHE booklet

¹³ www.stats.oecd.org

formal education system in 2013 was over 1.7 million, with , 929,000 in primary education, 511,000 in secondary education, and 308,000 in higher education,¹⁴ and an additional 580,000 in pre-schools. Nearly all children attend primary and secondary schools. Ninety percent of school-age children in Israel complete upper secondary education, compared to the average of 80% for the OECD.¹⁵

Israel overall spends around 7.3% of its GDP on education. This ratio is higher than most OECD countries, where the average is 6.1%.¹⁶ Israel’s “demographic burden” that is, the high percentage of the population aged 5-24, as well as high enrollment rates, is one reason that it spends more as a percentage of GDP than many OECD countries. In contrast, Israel’s expenditures per primary student are lower than the OECD average, although its expenditures as a percentage of GDP are at the OECD average.¹⁷

III. Divided Society, Divided Schools

Israel’s population in 2014 was estimated at 8.4 million, of which 6.3 million (74.9%) was Jewish, 1.7 million (20.7%) Arab Muslim, Christian, or Druze, and 366,000 (4.4%) classified as “other.”¹⁸ The number of Haredim is estimated at 9-10% of the population.¹⁹ These social, religious and ethnic divisions are reflected in Israel’s education system, which consists of four separate and distinct streams in primary and secondary education. Israel is not the only country in the world with separate school systems, which are common in many multi-cultural societies, especially in those in which there is little separation between the state and the predominant religious denomination in the country.

Enrollments in the four systems in 2000, 2015, and projected by the Central Bureau of Statistics to 2020 are as follows:

Table 1. Primary Enrollments by Stream, Percentage of Total

	2000	2015	2020
State	45.5	39.0	39.4
State-religious	14.5	13.9	14.5
Arab	24.6	24.9	22.6
Haredi	15.4	22.2	23.5
TOTAL	729,000	984,000	1,044,000

* Projections by Central Bureau of Statistics.

Source: CBS, Statistical Abstract of Israel, No. 67 (2016), Subject 8, table 12

Public state schools (“*mamlacht*”), serving mainly secular Jews, accounted for 39% of primary enrollment in 2015, down from 45.5% fifteen years earlier. These schools are formally defined as “Hebrew-speaking” rather than as “Jewish.” The language of instruction is Hebrew, although Arabic is taught as a required subject in lower secondary schools and later as an optional subject in upper secondary

¹⁴ CBS, Statistical Abstract of Israel No. 65, Tables 8.10, 8.12, 8.19, 8.23.

¹⁵ OECD, *Education at a Glance* 2014, p. 54.

¹⁶ Hemmings.

¹⁷ OECD, *Education at a Glance* 2014, tables B1.1a and B1.4

¹⁸ CBS, Press Release 2014. “Others” are neither Jewish nor Arab.

¹⁹ There is a great deal of uncertainty about the exact number of Haredim. See Ettinger, *Haaretz*, April 21, 2011 and Regev, as well as *Algemeiner*, December 17, 2015.

schools.²⁰ They offer a typical general curriculum of language, math, science, history, civic education, etc., and include instruction in “Bible study.” An estimated 5000 Arabs²¹ attend public Jewish schools. Their participation is growing, because of increased Arab migration to urban areas as well as a general belief that academic instruction in these schools is better than in Arab schools.

Public state “religious” (“*mamlachti dati*”) schools, serving religious but not Haredi Jews, account for 13.9% of enrollment in primary education, down from 14.5% a decade ago. These schools follow the same general curriculum as secular schools, but also include additional intensive religious study. Students come from observant (“modern orthodox” or “religious Zionist”) families following traditions such as Kashrut and Shabbat. Many students also come from what are called “traditional” families (usually “Mizrachi,” originally immigrants from Arab countries) which are less observant. By law, the state must make religious schooling available to parents on demand, a situation that, in small communities, leads to smaller schools and lower student/teacher ratios.

Public Arabic-speaking schools enroll 24.9% of primary students, up from 24.6% in 2000. These schools serve Muslims, Christians, Bedouin, and Druze. The language of instruction is Arabic, although Hebrew is taught as a subject. They have been historically underfunded compared to Jewish schools, mainly because of higher student ratios as well as lack of financial resources in Arab municipalities. Recent efforts have redressed much of this discrepancy. Nearly all teachers are Arab. The curriculum, except for language and religious studies, is nearly the same as that of Jewish schools.²² Because of declining birth rates and increased attendance in Jewish schools, Arab school enrollment will decline will go down as a percentage of total primary school enrollment.

Haredi schools account for 22.2% of primary enrolment. There are actually four separate Haredi subsystems, some of which are not overseen by the Ministry of Education. With some exceptions, Haredi boys study only a portion of the state math, science, English, social studies, and civics curriculum. These schools, for the most part, do not take part in any national or international exams and little research is available on them. The government funds 100% of the “basic” or “standard” costs of the two largest primary school subsystems and 55-75% of others, as well as 60% of the costs of male secondary level yeshivas (religious schools). Male graduates for the most part do not join the army²³ and only half of males are in the labor market (unlike Haredi groups in the US and Canada, who are more integrated into the general economy). Laws passed at the time of Ben Gurion exempted Haredi men from serving in the IDF as long as they studied in the yeshiva. While a few hundred students were affected at that time, at this time a total of 40,000 Haredi men currently hold this deferment, which has the negative consequence of providing a strong incentive not to enter the labor force. Those who do enter the labor market work, for the most part, in low skilled jobs, since they lack marketable skills in business, law, or technology.

Change is occurring, some of it spontaneously. Male Haredi participation in the labor market increased from below 40% in 2009 to 48% in 2011²⁴. It is possible that the Haredi community itself is beginning to recognize the importance of integrating into the larger society. Beginning in 2014, a number of Haredi schools have moved into the public orthodox system, with the result that total enrolment in Haredi

²⁰ Secular Jewish Israelis are generally not observant, in the sense of attending synagogue services, practicing Kashrut, and traveling on Shabbat, but they celebrate and/or observe national Jewish holidays. A small but increasing number of “secular” Jews attend or celebrate milestone events such as weddings and Bar/Bat Mitzvah festivities in reform and/or conservative synagogues.

²¹ Shwed et al.

²² Arab educational leaders believe that sensitive subjects, such as history, should more openly discuss the historical experiences of the Arab population.

²³ A controversial law was passed in 2014 to encourage Haredi service in the IDF but for the most part has not been enforced.

²⁴ Regev, p. 121

primary schools is declining for the first time in many years.²⁵ Pilot efforts are underway to provide secular schooling, such as law schools, to Haredi males after they have completed yeshiva studies, as well as to strengthen schooling for Haredi women, who are more likely than men to study the common core curriculum and to enter the labor market. Recent job fairs for Haredi men in Jerusalem have been oversubscribed.

A divided school system as well as residential segregation leads to lack of respect and understanding for the “other.” Surveys show that the vast majority of young people have little or no contact with other ethnic or religious groups. Along with 29 other countries, Israel participated in the 2000 IEA Civic Education study of knowledge and attitudes of eleventh graders with regard to citizenship, democracy, national identity, etc. Not surprisingly, the study found major differences between Arabs and Jews in pride in Israel’s achievements, history, national symbols, rights of Jewish immigrants, and the legitimate uses of military power. Arab students were also less likely than were Jewish students to identify the strengths of and threats to democracy, and had lower levels of efficacy, trust, and support for “altruistic” patterns of citizenship.²⁶

Several studies have identified negative stereotypes by Jewish students towards Arabs, although these attitudes change depending on the status of regional conflicts.²⁷ The President of Israel, Reuben Rivlin, has expressed deep concern with increasing levels of intolerance in Israeli society.²⁸ He and others have argued that intolerance and loss of confidence in the “social contract” could endanger the viability of Israel’s future existence. A survey by the Pew Research Centers documents the large gaps in attitudes towards and relations with “the other” between the different ethnic and religious groups.²⁹ A movie, “Teaching Ignorance,” graphically pictures the one-sided explanations of Israel’s history by Jewish, Israeli Arab, and Palestinian teachers.³⁰ A 2016 review by the Auditor General’s office observed that the Ministry of Education’s programs to build bridges between the different sectors of society were uncoordinated and inadequate to the task and teachers were not properly trained.³¹

There are increasing efforts, many of them by NGOs, to link Arab and Jewish schools, as well as, in a few cases, religious and non-religious. These include a small number of bilingual Hebrew-Arabic schools, recruitment of Arab teachers to work in Jewish schools, encounters in the North among Arab and Jewish students and teachers, curriculum and videos to encourage youths to understand the others’ experiences, encounters of Jewish and Arab teenagers and educators overseas, new textbooks with a shared society perspective, and art contests on the theme of tolerance and respect.³²

The government of 2013-2015 initiated a program entitled “The Other is Me,” which supports encounter groups among different ethnic, religious, and socio-economic groups, and mandates increased hours of community service required before graduation. These efforts have been de-emphasized by the coalition government of 2015-2017, which has also increased its efforts to incorporate stronger Zionist and religious elements into the curriculum. A promising innovation has been the Ministry’s financing of increased numbers of Arab teachers in secular Israeli schools, for the most part teaching Arabic language and culture. A very challenging but unmet need is to bring shared society principles to children in

²⁵ Blass 2014.

²⁶ See Ichilov (2000), pp. 371-395.

²⁷ Soen

²⁸ Remnick

²⁹ Pew

³⁰ Teaching Ignorance

³¹ Shapira

³² See for example Hand in Hand, Abraham Fund, Givat Haviva, Center for Educational Technology, Seeds of Peace, “Shonim B’yahad,” and Rothenberg. For a summary of all of these efforts, see Schneider, IATF

religious Jewish as well as Haredi schools. The divided school system also leads to more costly and inefficient deployment of teachers, resulting in lower student teacher ratios, especially in state religious and Haredi schools, since the state is required to provide such schools at the request of parents.

“School choice” in Israel, while important for allowing communities and social groups to maintain their own identity, leads to increased social segregation and, indirectly, to lower achievement for disadvantaged children. In Israel, only 40% of eighth graders attend schools that have a “mixed” socio-economic composition, compared to the average of 50% for OECD countries. Disadvantaged students in Israel attending predominately-advantaged schools score more than 50 points higher in international tests than would be expected given their background. Around the world, it has been shown that grouping higher-achieving students together limits the opportunity for under-achieving students to benefit by learning from their higher-achieving peers.³³

Differential population growth will have a profound impact on the nature of schooling and on Israeli society as a whole. Fertility rates are estimated at 6.0 children per Haredi woman. ³⁴ It is estimated that by 2057 Haredim will likely constitute 27% of the population. Among Arabs, there are 3.1 children per woman, a rate that has been declining rapidly, but the figure is still 5.0 for Bedouins in the south of Israel.³⁵ The birth rates of Haredim and Arabs are likely to continue to decline, and it is possible in the future that there will be “leakage” out of the Haredi community to modern orthodox or secular society. Nonetheless, and taking these declines into account, as can be seen above, by the year 2020 “secular” primary school enrollment will be 39.4% with Haredi enrollments reaching 23.5% and state religious schools moving back up to 14.5%. Because of sharply lower birth rates (as well as possibly entry into Jewish schools and/or migration), Arab school enrollment is expected to decline to 23.5% as a percentage of total.

The educational challenges of serving a school population in a divided system that is increasingly Haredi, Arab, and religious, to say nothing of the political, social, and economic implications of a future near-majority combined Haredi and Arab population, are daunting. While more Haredim are entering the labor market,³⁶ because of population growth there will still be increased numbers of young adult Haredim who are neither prepared nor willing to enter it, thus requiring the rest of society to subsidize growing numbers of Haredi families. While Arabs are increasingly completing secondary education, and entering higher education, inadequate technical and scientific knowledge, inadequate knowledge of Hebrew, and discrimination in the labor market will make it difficult to utilize fully the Arab labor force, with negative impacts on the prospects for increased productivity for Israel’s labor force as a whole.

IV. Learning Achievement, Equity, and Quality

Quality and Learning Achievement

Israel’s public had long been led to believe that Israel was a leader in educational achievement, based on the international testing programs in which it participated in 1967 and 1970, when Israel scored the highest in the world among 12-15 participating countries. However, beginning in 1999, Israelis were

³³ PISA 2014, Vol 4, p. 34. and PISA 2010 Vol. II, pp.93-94

³⁴ CBS, Ariel Patriel

³⁵ Bowers

³⁶ Regev

shocked to discover that their students were doing much more poorly than they expected. These tests include PISA (Progress in Student Achievement), managed by the OECD, which measures literacy, mathematics, science, and other skills of 15 year olds, and TIMSS (Trends in Mathematics and Science Study), managed by the IEA, which measure mathematics achievement of fourth and eighth graders.³⁷

Psychometricians believe that the tests of the 1960's and 1970's did not have adequate oversight of sampling frames, and that Israeli Arabs as well as immigrants who had arrived less than two years before were not included in them. Therefore, the impression that in the past "things were great" cannot be objectively confirmed.³⁸ Nonetheless, from 1999 to 2009 Israel scored 50-70 points below the international mean (which now includes a number of developing countries), behind nearly all OECD countries, with the exception of Turkey and Mexico, and lower than expected given its per capita income and the amount of money it spent per student. These tests are based on an international mean of 500 and a "standard deviation" of 100. Country scores range from a high of 560-600 to a low of around 330. Half a standard deviation in scores is often considered the equivalent of a grade year.

Table 2 summarizes Israel's overall scores on PISA by ethnic group since 2003.

Table 2. Israel's Scores on PISA, 2003 to 2015

	PISA Math			PISA Reading		
	Arabic	Hebrew	National	Arabic	Hebrew	National
2003	344	449	418	378	465	452
2006	372	460	442	372	456	439
2009	367	470	447	392	498	474
2012			466			486
2015	388	489	470			479

Source: OECD PISA 2015 Results, Volume 1 and Beller (3)

Table 3 summarizes Israel's efforts in the TIMSS.

³⁷ In the 1960's the International Association for the Evaluation of Educational Achievement (IEA) was formed as a non-profit international agency for the purpose of measuring reading, mathematics, and science achievement in participating countries. Increasing numbers of countries participate in IEA studies, including the TIMSS, given to fourth and eighth graders, and PIRLS (Progress in Reading and Literacy Study), given to fourth graders, as well as studies on civic education and computer literacy. In the early 1990's, OECD countries set up the PISA program measuring achievement of 15 year olds in reading, mathematics, and science based less on national curricula and more on an assessment of basic skills and knowledge needed in the labor force. The PISA tests soon were opened to non-OECD countries. Along with over 50 other countries, Israel has been participating since 1999 in the TIMSS eighth grade and PISA assessments of 15 year olds.

³⁸ Recent reports by the Taub Center highlight the learning and achievement issues faced by Israel. A commission report (Dovrat), completed in 2004, recommended a wide variety of reforms, only some of which have been implemented.

Table 3. Israel’s TIMSS Math Scores 1999 to 2015

	Arabic	Hebrew	National
1999	397	482	466
2003	465	505	496
2007	408	484	463
2012	465!	536!	516!
2015			507

*Schools are formally defined as Hebrew speaking or Arabic speaking.

Source: Jewish/Arab breakdowns provided by Beller (1) based on international reports. National scores are from TIMSS reports.

Successive governments and ministers of education began to realize that primary and secondary education was in crisis and initiated a wide variety of programs to raise standards as well as teacher salaries, morale, and quality. The efforts were rewarded by improved scores in the assessments of 2011 and 2012. In the 2011 TIMSS mathematics test given to eighth graders, Israel raised its score by 53 points, landing 6th in the world instead of 24th four years earlier.³⁹ Israeli Arabs also improved their scores, which are now higher than any other Arab country, although still significantly lower (three quarters of a standard deviation) than Israeli Jews. Israel’s increase in its scores from one test to the next was one of the highest in the 45-year history of the TIMSS assessment. Israel improved its scores in the 2012 PISA, although it still ranks below the average for OECD countries. Israel’s efforts largely used a best practices approach, including focusing on higher order learning skills encouraging teachers to work together, increased hours of study, and more effective pedagogical practices. These efforts have had results of such magnitude that they were highlighted in a 2014 OECD publication on PISA results.⁴⁰ Performance in the PISA and TIMSS tests of 2015 showed flat or modestly declining results. This is likely a result of the lowered emphasis on academic achievement by the Minister of Education over the period 2013 to 2015.

Haredi children do not participate in national and international tests, with the exception of a few girls’ schools. Nearly all Arab residents of East Jerusalem, who are defined as permanent residents of Israel rather than citizens, continue to follow a Palestinian curriculum and are not tested. The result is that 22.3% of all Israeli schoolchildren were not part of the TIMSS sampling framework.⁴¹ Israel has the highest percentage in the world of school children who are not included in the sample which takes TIMSS and PISA assessments.

It is increasingly recognized that test scores on standardized examinations of mathematics, language, and science knowledge are grossly inadequate measures of the multiple objectives of education and of the impact that education could have on society. Knowledge and skills for sustainable development

³⁹ IEA 2012

⁴⁰ OECD, PISA 2014 Volume 4. Box 4.1.4..

⁴¹ IEA 2012, Appendix C3.

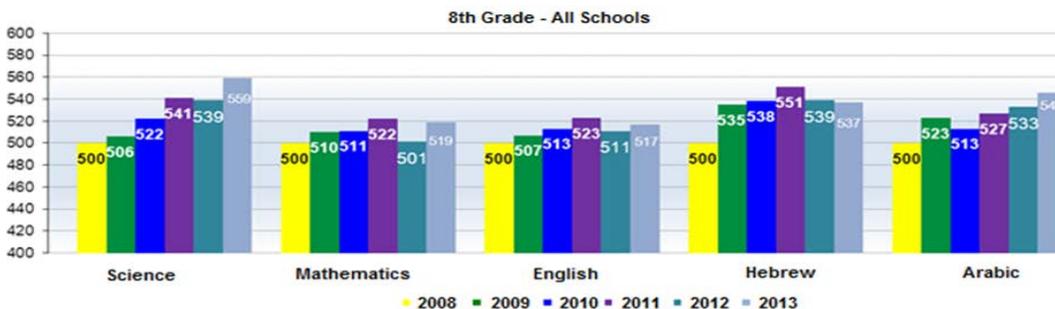
(environmental awareness, citizenship, appreciation of cultural diversity) are increasingly needed in the world. In light of this reality, the PISA/OECD is planning to initiate a new assessment which would measure “Global Competencies” in 2018, including students’ knowledge, attitudes and actions in these areas.⁴²

National Assessments

Under the system developed by RAMA (the National Authority for Measurement and Evaluation in Education), Israel’s assessment agency, external tests are given in science, math, English, Hebrew (for Hebrew speakers) and Arabic (for Arabic speakers) in grades 5 and 8 (“Growth and Effectiveness Measures for Schools,” or the acronym “Meitzav” in Hebrew). These tests are given on a staggered basis. Israel’s schools are divided into four “groups” each of which is representative of the country as a whole. Individual schools are tested once every two years in external tests in two subjects and two years later in the other two. The school-by-school results are published. In the years when a school is not externally tested, sample tests used to be provided to principals and teachers for their own use within the classroom. The idea behind internal exams is to provide teachers and principals with a snapshot of the conditions of learning in their classroom without the potentially negative consequences of publishing results (e.g. lowered school prestige, pressures on teachers and principals, etc.).

Beginning in 2007, technical refinements introduced by RAMA made it possible to compare Meitzav scores from one year to the next. Israel has seen relatively consistent improvements in scores on these tests since 2007, especially at the fifth grade level but also at the eighth. All of the scores were set at a standardized mean of 500 in 2007. In 2012 the average of all scores in science, math, English, Hebrew and Arabic was 541 for fifth grade and 525 for 8th grade. There were modest declines in results in most of the assessments from 2011 to 2012 and modest increases in 2013. Over time, the gaps between Jewish and Arab students have declined modestly, although they remain significant, with the lowest scorers Bedouins in the South.

Table 4 MEITZAV SCORES 2007-2013



Source: Beller

Scores in 2016 showed significant improvement, as well as a lowering of the gap between Jewish and Arab students.⁴³ RAMA also measures school climate and teacher satisfaction. It prepares a number of technical reports but has not adequately educated the public on the appropriate role and uses of standardized tests.

⁴² Schleicher

⁴³ Grave-Lazi

Teachers

In Israel, it has been widely reported that teachers suffer from low prestige and a culture of questioning their classroom authority.⁴⁴ Teachers' salaries have been considered low. As part of its efforts to improve education, in 2007 the Government initiated the New Horizons program in primary and lower secondary schools. In 2012, the government launched a similar program, Courage to Change, for upper secondary schools. These programs increase teacher working time and salaries, reduce student teacher ratios, encourage collaboration among teachers, upgrading their skills, and the entrance of more highly qualified individuals into the profession.

After accounting for recent raises in teachers' salaries (16-24% through the New Horizons program), as well as fringe benefits, their salaries, especially in primary schools, have increased significantly, although they are still somewhat below the OECD average.⁴⁵ Teacher job satisfaction appears to be improving. It is believed to be higher in poor townships compared to better-off townships, probably a result of the lower cost of living in the periphery as well as somewhat higher salaries because of higher education levels of teachers in those areas.⁴⁶

It is commonly believed that the Israeli classroom is "chaotic," with discipline problems as well as lack of respect for teachers by students as well as parents.⁴⁷ The effect of this "chaos" is to reduce time available for learning, since so much time is spent on discipline or on clerical activities. A review of international studies⁴⁸ suggested that improvements in the level of discipline in the average of OECD countries (as reported in the TIMSS 2007 study) could increase learning achievement. Since 2012, the government has initiated programs to improve school climate and reduce incidents of violence, with positive results reported.⁴⁹

Inequities in Education

In Israel, as elsewhere, factors external to the education system have a strong impact on learning. Israel has a large gap in income between the rich and the poor, higher than nearly all other OECD countries, although comparable to the US. In 2011, 33% of Israeli families, many of them Haredi or Arab, had a gross income below the poverty line, before accounting for taxes and welfare.⁵⁰

Israel's dispersion of scores in PISA continues to be the highest of OECD countries. The differences between the 10% poorest and the 10% highest performing students (275 points) are higher than all OECD countries. Israel's 10% lowest performing students score 328, lower than all OECD countries except Mexico.

⁴⁴ Volansky, p. 17.

⁴⁵ Blass 2013.

⁴⁶ Blass 2009.

⁴⁷ This is not a problem unique to Israel. Among OECD countries 32% of students reported significant noise and disorder in their classroom (PISA 2009 IV, p. 91)

⁴⁸ Blank and Shavit.

⁴⁹ RAMA, "Monitoring Data for the level of violence in the school system."

⁵⁰ Ben David and Bleikh, Transfer payments from the state reduce this figure to 20%.

Table 5. International Tests: Score Spreads on PISA 2012 Mathematics

PISA Math	Israel	OECD	Canada	Korea	USA
Top 10%, Average Score	603	613	633	679	600
Bottom 10%, Average Score	328	375	402	425	368
Point Spread	275	238	231	254	232

Source: PISA 2014 Volume I, Table 1.2.1b

An international study of adult literacy and skills (PIAAC) showed a similar dispersion, with a relatively high percentage of high performers, but also a large dispersion of scores and on average a performance below that of most OECD countries.⁵¹

In PISA 2012, Israeli children from the bottom quarter of the population in terms of socio-economic status (s.e.s.) and availability of “cultural” resources such as books at home, were two and a half times more likely than those in the top quarter to perform in the lowest quarter of math achievement (higher than all but three OECD countries).⁵² On the Ministry of Education’s Meitzav 2011 sample test of eighth graders, children in the lowest 20% of s.e.s. mastered 42% of the mathematics curriculum, compared to 60% in the highest 20%.⁵³

As note above scores in the 2016 Meitzav showed a significant lowering of the gap between Jewish and Arab students. But Arab students continue to score three quarters of a standard deviation below the level of Jewish students (see tables 2 and 3). Lower education levels among Arab families affect cultural attitudes, e.g. how parents approach education and the extent to which they provide learning opportunities to their offspring (e.g., reading aloud to young children). Arabs in the south (mainly Bedouin) score significantly lower than those from other regions. Especially in Bedouin areas, parents may be illiterate. Large family size reduces the time available for parents to interact with each child. Written Arabic is diglossic, i.e. it does not reflect colloquial Arabic,⁵⁴ so children need, in effect, to learn a “foreign” language for literacy in their native tongue, as well as learning Hebrew (and later English) while they are learning to read. Native Arabic speakers also face a social obstacle in the low status of the Arabic language, especially in urban areas. Arab boys do more poorly than girls—41.9 compared to 49.4 on the Meitzav mathematics test— one of the increasing cases around the world where boys score significantly lower than girls do in math.⁵⁵

Jewish minorities such as Ethiopians, as well as immigrants from some Central Asian countries, face similar disadvantages. Ethiopian students score about three-quarters of a standard deviation below other Jewish students.⁵⁶ While the gap has been decreasing, “Mizrachi” children (whose families originate from Middle Eastern countries) reportedly do more poorly in schooling than do those with European (Ashkenazi) origins.

⁵¹ PIAAC

⁵² PISA 2014, Volume II, Table II.2.4a p. 185.

⁵³ CBS, Statistical Abstract of Israel, No. 65 (2016) Table 8.14.

⁵⁴ Written (classical) Arabic is rarely spoken in the modern Arabic world. Learning to read and write in Arabic might be roughly comparable to modern English speakers having to read and write in Chaucerian English.

⁵⁵ CBS, Statistical Abstract of Israel No. 65, 2014, Table 8.24.

⁵⁶ RAMA. “Ethiopian Students in Israel’s Education System.”

In 2013, the central government provided 71.1% of all recurrent education financing, local authorities (municipalities) covered 6.8%, and households, individuals, and private non-profit institutions account for 22.2% of total expenditures.⁵⁷ Cities like Tel Aviv, with a strong tax base, supplement central government financing. Parents, especially those in higher income brackets, pay for items such as afternoon pre-schooling (the Government until recently only covered only morning pre-schools), tutoring, textbooks in higher education, enrichment in primary and secondary schools, cram courses for national tests (the “grey” education market), and tuition to cover part of the costs of higher education. Poorer municipalities in both Arab and Jewish locations do not have the resources to supplement state funding. In line with recent decisions, the percentage of public support for pre-primary and primary education has begun to increase. A 2014 report decried the lack of transparency in the education budget, and noted that significant changes are often made from year to year in program funding without explanation of their purpose.⁵⁸

Per student public funding in Israel varies by location as well as by ethnicity. Since formal levels of training as well the salaries of Arab teachers are the same as that of Jewish schools, much of the difference in funding in the past has come from higher student-teacher ratios in Arab schools. The student-teacher (and student-class ratio) in Arab schools declined significantly between 2007 and 2012 to a level that is now roughly equal to that of state Jewish schools. It has been reported that student-teacher ratios are lower in ultra-orthodox schools.

Israeli children with pre-schooling score 46 points (half a standard deviation) higher in mathematics in PISA than do those with no pre-schooling.⁵⁹ Middle and upper class parents seek to advantage their children by spending their own funds for expanded pre-schooling during the day, as well as for additional years of pre-schooling.⁶⁰ Middle class families spend money on private tutoring and afternoon schooling, especially in primary schools, where until recently the state financed the school day only through 1 pm, as well as in preparation for the secondary school leaving examinations (“Bagrut”), a system known as “the grey education market.” 52.9% of Israeli 15 year olds report that they receive after-school tutoring in mathematics.⁶¹ Ten percent of all secondary school seniors take “cram courses” for university entrance exams.

Over the past ten years, Israel has been making significant “affirmative action” efforts for its disadvantaged groups. In 2008, the Government announced it would initiate programs to raise the basic skills of Arab, Druze and Bedouin children, especially in mathematics, science and English, as well as build new classrooms to meet the needs of the growing Arab population. In 2010, the government pledged additional funding for all Arab third graders to receive supplemental classroom hours in math, science and Arabic, and more tutors were to be assigned to those subjects in 20% of schools.

In 2015, the government proposed injecting a significant amount of new funding to Arab schools. Specific goals have been set for improved learning achievement in Arabic, Hebrew, and mathematics, and for increased completion rates in secondary and higher education.⁶² This bulk of this program has not yet been implemented. An encouraging sign is that test scores and achievement of Arab children whose mothers are college graduates are equal to those of Jewish children with college graduate mothers. This suggests that Arab children’s performance will improve as parents’ educational attainment levels rise.⁶³

⁵⁷ CBS, Statistical Abstract of Israel, No 65 (2014), Table 8.2.

⁵⁸ Blass and Cogan.

⁵⁹ PISA 2014 Volume II, table II.4.I3.

⁶⁰ Recent government efforts to expand compulsory pre-schooling have focused on access for disadvantaged groups.

⁶¹ 2009 PISA Volume IV, p. 237.

⁶² Elran, Yashiv, and Nasra

⁶³ CBS Statistical Abstract of Israel

⁶³ CBS Statistical Abstract of Israel 2014, Vol. 65, Tables 8.22 and 8.26

The Ministry of Education has acted to reduce class size, especially in communities at lower socio-economic levels and in the first two grades of primary education, and to increase instructional hours. A decision has been taken to move towards increasing pre-schooling to a full day from the current 1 pm and ensure that it is free. Initial pre-schooling efforts focus on underprivileged populations. Expanded government support of pre-schooling as well as increased learning opportunities in the afternoon for children aged 3-9 was the major education recommendation of the Trajtenberg commission, convened after the 2011 social protests. Israel has a number of pilot programs, often financed by NGOs, to improve learning among disadvantaged populations.

Secondary and Higher Education

Secondary Education

Israel's secondary schools are divided by ethnicity and religious persuasion, but also by types of schools. "Secular Jewish" schools account for an estimated 46.9 % of enrollment in 2014, state religious schools 13.4%, Haredi 10.7%, and Arab 29.0 %. 28.7% of enrollment is in technical/vocational schools, some of which do not offer access to higher education.⁶⁴ NGO's are often contracted by municipalities to manage or assist secondary schools, especially in vocational/technical subjects. A number of schools are defined as "democratic," offering a more progressive course of study than is typical. There are also magnet science and technology schools, often directed towards groups such as Russian immigrants or Bedouin.

The Israeli testing regime is unusual in that it has both a European style "high stakes" end of secondary cycle exam ("Bagrut") as well as an American style aptitude test ("Psychometric Exam"), similar to the US Scholastic Aptitude Test (SAT), which is required by most universities. The Bagrut examination is given to most students who complete secondary education. Students must reach a certain score in order to be eligible to attend a higher education institution. They take tests in seven subjects: English, math, Hebrew or Arabic, history, and civics are required, and there are two optional subjects. Until recently, Israel had 157 individual Bagrut tests, many of them in narrowly focused technical/vocational areas, given over three years on five separate occasions. Individual subjects are offered at various "levels of difficulty," which are defined as "units"—e.g. a "five-unit" mathematics test is much more difficult than a "two unit" mathematics test. In 2012, 83.9% of 12th graders sat for the examination and 59% of them received a matriculation certificate⁶⁵ signifying completion of secondary school of which 48.3% scored high enough to be eligible to enter a university. Those below the university cutoff point are eligible to continue their schooling in non-academic or training programs. 51% of Jewish students taking the exam were eligible to attend university compared to 38.2% of Arab students. Girls do better than boys in these examinations, especially among Arab students.

The matriculation rate for each school as well as the country as a whole is carefully followed by parents and stakeholders, and political leaders often seek ways to increase this ratio. One result has been that, over time, students have been allowed to take the Bagrut a second time. Private Bagrut tutoring has become more available to students who sit for these exams. Increasing numbers of students (32% of all examinees in 2012) have been requesting special accommodations based on learning disabilities.⁶⁶ These accommodations can include extra time, ignoring spelling mistakes, and sometimes giving the test orally.

⁶⁴ CBS Statistical Abstract of Israel 2014, Vol. 65, Tables 8.19 and 8.21. Many ultra-orthodox students attend yeshivas (institutes of religious studies) which are not considered secondary schools and do not study secular subjects.

⁶⁵ CBS Statistical Abstract of Israel 2014, Vol. 65, Table 8.26.

⁶⁶ CBS Statistical Abstract of Israel 2014, Vol. 65, Table 8.25.

Since the tests are not prepared with “anchor items” from one year to another, it is not possible to confirm whether one test is more or less difficult than a previous one.

Most observers and stakeholders agree that the Bagrut distorts much of the teaching at the secondary level. Too many tests are given in all subjects, beginning in tenth grade, with options for students to take the tests as many times as they wish. In response to these concerns, in January 2014 the Ministry of Education implemented a reform of the testing regime for the Bagrut examination, to reduce the “backwash” effects of the examination and to allow more flexibility for teachers. The number of required exams was to be reduced. English and math now have two optional exams rather than three. The Bagrut will be given only during the last two years of secondary school. Increased weight will be given to school and teacher based assessments including taking into account “portfolios” prepared by students. Efforts are also underway to reduce the near universal requirement to sit for the “Psychometric” exams for university entrance.⁶⁷

Higher Education

Israeli Institutions of higher education comprise eight universities (Haifa, Hebrew, Tel Aviv, Bar Ilan, and Ben Gurion Universities, the Technion, Ariel,⁶⁸ and the Weizmann Institute of Science⁶⁹), 58 colleges, of which 21 are public teacher training colleges and 16 are private, and a publicly funded “Open University” providing distance and part-time education. In 2013-14, 308,000 students were studying for a degree, including 237,000 undergraduates, 59,700 Master’s degree students, 10,650 doctoral students, and 1,200 post-secondary diploma students. Enrollment in private institutions, the first one of which began only in 1991, has been growing and now totals 47,000 students.⁷⁰ The number of students in colleges has been increasing rapidly and enrollment is now higher than in universities. A Council for Higher Education, chaired by the Minister of Education, provides oversight.

Higher education in Israel is considered to be of relatively high quality, not only at the university level but also in colleges, which offer training and preparation more closely aligned with the labor market. Three of Israel’s universities (Hebrew, Technion, and Weizmann) are ranked among the top 100 universities in the world.⁷¹ As noted above, Israel has one of the highest ratios in the world of scientists and engineers in its labor force. Its ratios of patents, scientific papers published, and Nobel prizes awarded compared to population are among the highest in the world.

However, Israel faces a number of challenges with regard to higher education. It is reported that inadequate salary levels have led to a “brain drain” of high-level researchers and academics, mostly to the US. Increased tuition makes it difficult for needy students to continue their education. Households and students pay 39.8% of the costs of attending universities and 57.8% of the costs for colleges.⁷² Higher student teacher ratios and inadequate financing of non-salary expenditures are reported to have eroded quality. Until recently the number of full time senior faculty members in universities remained static, while enrollment increased by 50%.⁷³ Arabs account for only 12% of higher education enrollment and

⁶⁷ Skop.

⁶⁸ Ariel University, established as a university in 2012, is located in the West Bank.

⁶⁹ The Weizmann Institute serves only graduate students.

⁷⁰ CHE

⁷¹ ARWU

⁷² CBS Statistical Abstract of Israel 2014, Vol 65, Table 8.2

⁷³ Ben David, 2013 “Update on the State of Israel’s Universities and its Researchers.”

only 2% of faculty, compared to 20% of Israel's population.⁷⁴ Only 7.5% of Haredi men aged 25-44 hold bachelor's degrees.⁷⁵

Since the language of instruction in Arab primary and secondary schools is Arabic, graduates of secondary schools find it difficult to succeed in higher education, where the language of instruction (with the exception of one or two teacher training institutions) is Hebrew. They are also at a disadvantage in higher education compared to Jews, who have spent 2-3 years in the army, are more mature, and often receive financial support from the Government to prepare for the Bagrut and university entrance exams.

In response to the problems of underserved populations, the Israeli Council for Higher Education in 2012 initiated a five-year program to encourage and assist Arab secondary school graduates to attend higher education. This program includes high school counseling, pre-academic training, scholarships, and counseling and support for entering higher education students.⁷⁶ Programs to strengthen Arab students' English language capabilities and build up their capacities in science and technology are also growing. Since 2011, ten academic campuses for Haredi students have been established. In 2013, some 5000 Haredim studied in publicly funded institutes of higher education. Loans and scholarships, as well as placement services are available for some of these students. In addition, efforts are underway to reduce student teacher ratios, improve the ratio of tenured senior faculty to students, attract researchers to return to Israel, and strengthen internal and external assessments of college quality.⁷⁷

V. The Way Forward

What Israel does for its children will create tomorrow's adult reality. The challenge is to have an education system that helps to build a cohesive society, is effective, serves all of Israel's children, and enables it to fully harness its human potential. In countries such as Canada, New Zealand, and Finland, which have successfully improved learning, consensus transcended political, ethnic and religious divisions, and there was full support from stakeholders, including teachers' unions.⁷⁸ Educational achievement benefited from 10-20 years of consistently applied policies based on a "top down/bottom up" approach, with central authorities articulating clear goals, ensuring equity and measuring results, and schools, teachers, and communities working together to serve their students.

In Israel, the last ten years have seen efforts to redress many of the critical issues of the education system, including increasing learning achievement in primary and secondary school, redressing inequities in financing and support of underprivileged groups and seeking to restore the quality of higher education. On the other hand implementation of programs to build bridges between the different ethnic and religious groups and their streams of education, has been erratic, depending to a great extent on the political views of individual Ministers of Education.

The learning gains made recently for the school population as a whole and, more specifically for disadvantaged populations, should be consolidated. Efforts must be increased to improve conditions of learning for Arab students and to get them into higher education and into skilled jobs in the labor market, as well as to encourage Haredim to study the core curriculum and to enter the labor market with decent skills. There is a relatively strong political consensus on these efforts. But it could be argued that the

⁷⁴ Avivit Hai. However, a significant number of Israeli Arabs attend higher education institutions in the West Bank and other Arab countries.

⁷⁵ Taub Institute, Picture of the Nation 2014.

⁷⁶ Avivit Hai

⁷⁷ Israel Council for Higher Education.

⁷⁸ See McKenzie

greatest challenge for Israel's education system is, to create a climate of tolerance, religious pluralism, and understanding of the validity of the narratives of Israel's diverse religious and ethnic communities. This has been reiterated in the Attorney General's report, which states that the Ministry of Education

must convey an unequivocal message to all the streams in the education system and to everyone entering it—students and education staff from preschool through to Grade 12—that Israel is a democratic state belonging to all its citizens and resting on values shared by all the groups and individuals residing in it.⁷⁹

Building social coherence is recognized internationally as a challenge for living in a global world.⁸⁰ The education system should play a greater role in helping Israel to survive and flourish as a democratic and multicultural state.

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⁷⁹ Shapira

⁸⁰ Schleicher

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