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TRENDS IN THE DEVELOPMENT OF THE EDUCATION SYSTEM

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Trends in the Development of the Education System

Nachum Blass*

Abstract

In recent years, several important changes have taken place in the education system: the trend in the demographic composition of pupils has changed significantly; the resources at the disposal of the education system have grown considerably; and with regards to the work force, all of the primary and a large portion of post-primary education teachers are now part of the most recent educational reforms ("New Horizon" and "Courage to Change"). The professional education qualifications of teachers have improved, and the great majority of them now have higher education. The learning achievements of Israel's pupils have also improved, as is evident from the results of the Meitzav tests, matriculation exams and international testing. Furthermore, the achievement gaps between pupil populations have narrowed, including those between Jewish and Arab Israeli pupils. Improvement is also evident in the educational environment of schools. Despite these changes, the financial allocation per pupil in Israel is still low relative to the OECD countries, and despite the narrowing of gaps between various population groups, they remain among the largest of the OECD countries. There is still a long way to go until the quality of what the education system provides to its pupils and until pupil achievement, in both learning and educational terms, meet the standards of the countries that Israel seeks to emulate.

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1. Demographic Trends

In the past five years, there has been a decrease in the share of Arab-Israeli and Haredi (ultra-Orthodox) pupils in the education system. Since these two populations are characterized by weak socioeconomic backgrounds, this change has had a large effect on the system. This section will examine the effect of the demographic changes on preschools and on primary education in light of the implementation of the Trajtenberg Committee's recommendations.

Preschools. In the past 15 years, there have been large changes in the rates of Arab Israeli and Haredi children attending preschool. From 2000-2010, there was an increase in the two groups' share of the preschool population mainly due to the Compulsory Education Law, which was first implemented in weaker socioeconomic localities where many Arab Israelis and Haredim reside. In contrast, during the last five years, the share of Arab Israelis and Haredim in preschools has declined, due to a combination of further implementation of the Trajtenberg Committee's recommendations as well as changes in natural growth patterns. The most prominent change was recorded in 2013, when the number of children attending State preschools rose by 22,000 – from 150,000 to 172,000.

Most of the increase in 2013 came from children who did not attend preschool in the past, or who attended private preschools and transferred to State preschools following the implementation of the Trajtenberg Committee's recommendations. Nonetheless, it should be noted that in the three years prior to the recommendations' implementation, there was already an increase in the growth rate of enrollment in State education, as opposed to a significant decline in the growth rate of enrollment in Haredi preschools. Examining the period before implementation of the Trajtenberg Committee's recommendations shows that between 2000 and 2006, the number of pupils in Arab Israeli and Haredi preschools rose by 61 percent and 47 percent, respectively, whereas the number of pupils in State and State-religious preschools rose by 1 percent and 6 percent, respectively. In contrast, between 2006 and 2012, the number of pupils in

Arab Israeli preschools declined by 1 percent and the number of pupils in Haredi preschools rose by 16 percent, while the number of pupils rose by 20 percent in State preschools and by 22 percent in State-religious preschools.

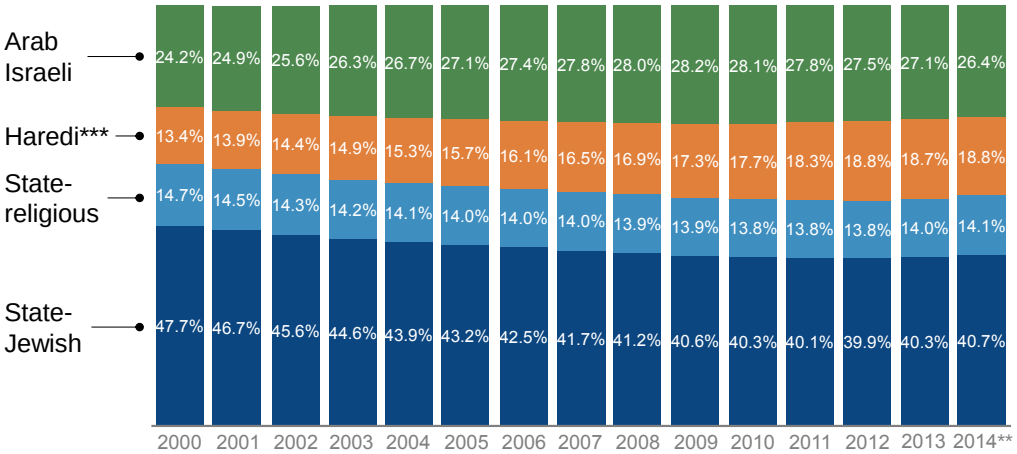
Grades 1-6. The picture in grades 1-6[1] points to a change of direction in the composition of the primary education population. The change is evident starting in 2010, and consists mainly of stabilization (and indications of a slight increase) in the share of pupils in Jewish education, and a decline in the share of pupils in Arab Israeli education. In examining the share of Arab Israeli pupils in this age group, two distinct periods can be discerned: between 1999 and 2008, there was an increase from 24.2 percent to 28.2 percent, and between 2008 and 2013, there was a drop from 28.2 percent to 26.4 percent. There are also two distinct periods characterizing the share of pupils in Jewish State-run education: a continuous decline from 47.7 percent in 1999 to 39.9 percent in 2011, followed by a slight recovery and a rise to 40.7 percent in 2013. The trends in State-religious education paralleled those of Jewish State education. The share of pupils in Haredi education over the last three years remained stable at 18.8 percent, in contrast to the continuous rise between 1999 and 2011, when the share of pupils in Haredi education grew from 13.4 percent to 18.8 percent. The data indicate that these demographic changes are apparently not due to an exceptional change in a single year, but rather, a trend that began near the end of the previous decade and continues to the present. It goes without saying that this trend may not continue, but these findings suggest that the rhetoric and tone of the public discourse concerning the demographic composition of the education system and its possible future consequences should adjust to match the facts.

[1] In Haredi education, primary education is customary through eighth grade, so for comparison purposes, only grades 1-6 were examined.

Figure 1

Distribution of pupils in grades 1-6

by population groups, school years 2000-2014*



* Years relate to the year in which school ends

** Ministry of Education calculations

***Haredi are ultra-Orthodox Jews

Source: Nachum Blass and Haim Bleikh, Taub Center

Data: Ministry of Education

2. *Resources Available to the Education System*

Budget

Since 2008, there has been a significant increase in the Ministry of Education budget, including in the original budget, the amended budget (i.e., in the budget as calculated at the end of the fiscal year, after all the budget changes during the year are taken into account) and in the final budget (i.e., the actual expenditure of funds). The increase is especially prominent in the years 2013-2014, although data regarding actual expenditures are not yet available for these years. The main reason for the

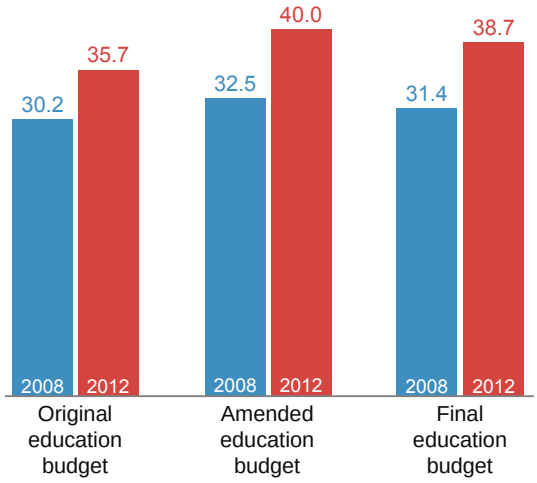
change is most likely due to the wage agreements signed with the Teachers' Union and with the Teachers' Organization. It is important to emphasize that these wage agreements involved far-reaching changes in the work patterns of teachers, which added hundreds of thousands of working hours to the education system via additional classroom hours, a reduction in the number of pupils per class, and an increase in the average working hours for teachers (Blass, 2013).

In the period between 2008 and 2012, the amended budget and the final budget increased by 23.0 percent and 23.2 percent, respectively while the overall number of pupils rose by 10 percent (Figure 2)[2].

Figure 2

Original, amended and final budget of the Ministry of Education

in billions of shekels, 2011 prices



Source: Yulia Cogan, Taub Center for Social Policy Studies in Israel
Data: *Accountant General's Report*

[2] The original budget for the years 2013-2014 increased by more than 33 percent as compared to the 2008 budget, but the data on changes in the amended budget and the final budget for these years is not yet available.

The increased budget had many consequences in several important areas:

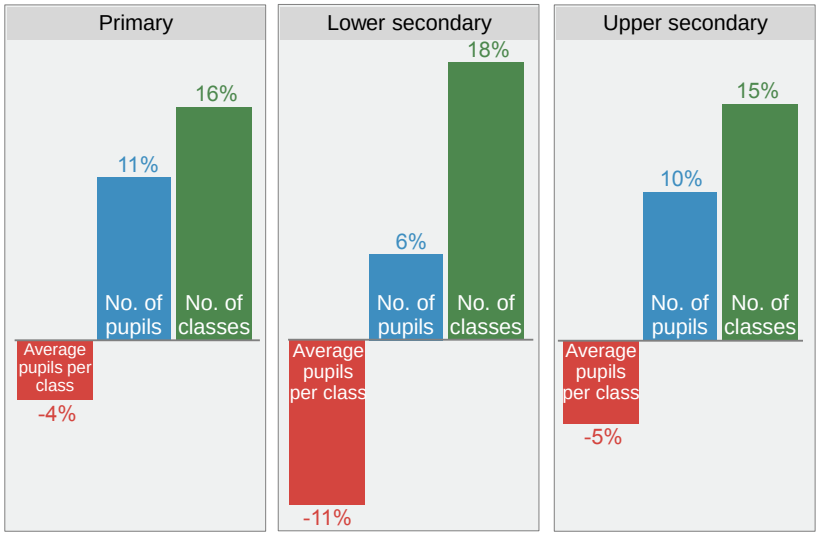
Class size. The increased budget enabled partial implementation of the section in the teacher wage agreement, which called for reducing average class size. This implementation is evidenced by the fact that there was a greater increase in the number of classes than in the number of pupils (Figure 3). The increase in the pupil population between 2008 and 2013 occurred mainly in primary education (due to an increase in the number of children in this age cohort) and in upper secondary schools (due to increased attendance rates of those born in the relevant years). During the same period, the number of classes in primary education grew by 16 percent, which contributed to a 4 percent drop in average class size. The most prominent increase in the number of classes was in the lower secondary schools, which manifested in an 11 percent drop in the average class size between 2008 and 2013. The average number of pupils per class in primary education dropped by 4 percent and in upper secondary schools declined by 5 percent during the same period.

Although these findings represent an important development with regards to class size, the situation is still far from the goal as outlined several years ago. In October 2007, the Teachers' Organization began one of the hardest and longest strikes in the Israeli economy. The strike ended in December 2007, and according to the Organization, one of its major achievements was the government's agreement, in principle, to gradually reduce the number of pupils per class to 32, that is, by at least 20 percent.

Figure 3

Change in the number of classes and pupils

by education level, between 2008 and 2013



Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Central Bureau of Statistics

It appears, then, that the Ministry of Education did act to meet its obligation, albeit very slowly.[3] This action was possible mainly in light of the increase in the Ministry's budget, although the budgetary allocation in this area was not fully utilized[4] (Appendix Table 1). The State's delay in actually meeting its obligation eventually led to a protest on the part of

[3] A previous publication by the Taub Center for Social Policy Studies in Israel that dealt with this subject (Blass, 2008) anticipated there would be serious difficulties in implementing the decision to reduce class size.

[4] While it is possible that some of the funds from one budget line were transferred for use in another budget line, there is no evidence in the explanations to the budget or to the amended budget that this is in fact the case. For a detailed discussion on the subject of the use of the budget in general, and this item in particular, see Blass (2014).

those parents whose children were not yet part of the class size reform and who remained in large classes – a protest that began at the end of the 2013-2014 school year, and was dubbed "the protest of the sardines."

Teaching staff and weekly per class and per pupil hours[5] in primary education.[6] As noted previously, the Ministry of Education budget grew far beyond the increase in the number of pupils, and together with the improvement in teachers' wages, a reduction in class size was also possible. The question arises as to whether the increased budget also allowed for an increase in the number of weekly teaching hours allocated to schools.

The "New Horizon" agreement brought about an essential change in the structure of the teaching job. Before the signing of the agreement, a full-time job was defined as 30 weekly working hours. However, due to deductions in hours from the required teaching time (homeroom teaching, reduced hours for new mothers, training time, and benefits to veteran teachers), a full-time job was only 23 weekly teaching hours (including hours of individual instruction, if such were included in the teaching schedule). Following the agreement, a full-time job is defined as 36 hours – of which 26 hours is frontal teaching, 5 hours is for individual instruction in small groups, and another 5 hours is for other school-related needs. Since veteran teachers and new mothers have retained some of their benefits even after the agreement, teachers now work an average 28.2 weekly hours. As such, there has been a 23 percent increase

[5] The term "weekly hours" is a budgetary term, which denotes the number of weekly hours that a teacher is required to work based on the cost of one working hour by a teacher in the course of a year.

[6] This part of the chapter deals only with primary schools for two reasons. The first is that the major changes due to the new wage agreements have only been completed in primary education; the second is because there have been changes in how teaching staff are reported in the other educational levels during this time period. In 2008, the reporting included all teachers teaching in post-primary education, whereas in 2013, the lower secondary schools were separated from the upper secondary schools. Since some teachers work in both lower and upper secondary schools, it was not possible to compare the data from the different years.

in the average working hours since the signing of the "New Horizon" agreement.[7]

Indeed, Table 1 clearly shows a 28 percent increase in teaching hours allocated per pupil, and a 24 percent increase in hours per class. This is an extremely significant increase, and if used wisely can be beneficial at many levels.

Table 1. **Pupil data, classes and teaching staff in primary schools, 2008 and 2013**

	2008	2013	Percent change 2008 to 2013
Number of pupils (A)	839,268	933,053	11%
Number of classes (B)	32,793	37,822	15%
Teaching staff* (C)	64,594	75,166	16%
Total weekly teaching hours (D)	1,485,504	2,118,030	43%
Weekly teaching hours per pupil (D/A)	1.76	2.27	28%
Weekly teaching hours per class (D/B)	45.3	56.0	24%
Average weekly teacher work hours (D/C)	23.0	28.2	23%

* All teachers, irrespective of their weekly number of work hours

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Central Bureau of Statistics, various years

[7] No data are available showing how the "New Horizon" agreement affected teachers' average wage, due to the fact that the supplements were awarded differentially based on tenure, number of continuing education courses completed and pay rank.

3. International Comparison of Education System Developments

To obtain a complete picture of developments in Israel, it is interesting to examine what happened during the same period in other countries in the area of education expenditures. Table 2 shows the expenditure per pupil in various OECD countries relative to Israel. However, it is important to note that the picture arising from the data is incomplete, because the data cover the years 1995-2010 (these are the most updated OECD data available). The trends – a faster increase in OECD spending on the one hand and a slower increase in Israeli spending on the other – were reversed in the years 2010-2013. While the per pupil expenditure for primary education in Israel increased dramatically in the last few years, the level of investment in education was frozen in other OECD countries due to the economic crisis. It is reasonable to assume that with the completion of the reform in teacher working conditions in the coming years, the figures for Israel will be much higher in forthcoming OECD publications.

Table 2 clearly shows that from 2005-2010, the investment per pupil in the education system grew more rapidly in Israel than in the OECD countries on average[8] and only six countries increased their investments at a faster rate than Israel. In contrast, in previous periods, the per pupil expenditure in Israel grew far less than the OECD average.

[8] The average includes all the OECD member states.

Table 2. **Per pupil expenditure in Israel and OECD countries***

in fixed prices, ordered by change between 2005 and 2010**,
Base year: 2005=100

	1995	2000	2010
Slovakia	62	68	159
Poland	50	78	153
Estonia	53	66	134
Ireland	53	69	133
Australia	73	88	131
Czech Republic	75	71	125
Israel	**94**	**101**	**120**
OECD average	**73**	**84**	**117**
Netherlands	73	87	113
Spain	73	87	113
USA	74	89	113
Sweden	84	90	113
Finland	81	85	112
Norway	86	92	111
Portugal	63	88	109
England	62	62	109
Japan	78	90	109
Switzerland	81	89	108
Mexico	74	85	104
Denmark	79	91	102
Italy	96	97	97
Hungary	61	64	95

* OECD countries for which there is information for all of the years. In PPP dollars. Not including students.

** The table relates to different years than the text because these are the latest years when data is available. As has been noted, it is important to emphasize that the per pupil expenditure in Israel rose greatly in the years following those shown in the table.

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel

Data: OECD (2013)

It is necessary, however, to consider the data in Table 2 in the context of the data shown in Table 3: expenditure per pupil in 2010 in primary and post-primary education, and the size of expenditures relative to per capita GDP. In this area, Israel is still at the bottom of the list. If countries such as Turkey and Mexico are removed from the calculation, the picture becomes even worse. In comparison to the OECD average (including Turkey and Mexico), the gap between Israel and the OECD in the size of expenditure per pupil relative to per capita GDP is not so large. However, the expenditure per pupil in monetary terms (in purchasing power parity dollars) is higher in the OECD than in Israel by 24 percent in primary education and by 62 percent in post-primary education. Nonetheless, it is important to emphasize that the situation has improved considerably since 2010, especially in primary education, and it is expected to improve in post-primary education as well with the implementation of the latest wage agreement.

Table 3. **Per pupil expenditure on primary and post-primary education, 2010** (continued next page)

in PPP dollars and relative to per capita GDP, Israel and OECD countries, ordered by total expenditure on primary education

	Primary education		Post-primary education	
	Relative to per capita GDP	PPP dollars	Relative to per capita GDP	PPP dollars
Luxembourg	25.1%	21,240	20.8%	17,633
Norway	27.3%	12,255	30.9%	13,852
USA	24.1%	11,193	26.8%	12,464
Switzerland	24.5%	11,513	30.6%	14.972
Denmark	26.9%	10,935	28.9%	11,747
Austria	25.3%	10,244	31.1%	12,551
Sweden	25.4%	9,987	25.9%	10,185
Iceland	26.7%	9,483	22.1%	7,841
Australia	23.1%	9,463	25.4%	10,350

Table 3. (continued from previous page) **Per pupil expenditure on primary and post-primary education, 2010**

in PPP dollars and relative to per capita GDP, Israel and OECD countries, ordered by total expenditure on primary education

	Primary education		Post-primary education	
	Relative to per capita GDP	PPP dollars	Relative to per capita GDP	PPP dollars
UK	26.5%	9,369	29.6%	10,452
Slovenia	33.5%	8,935	30.7%	8,187
Belgium	23.4%	8,852	29.1%	11,004
Italy	25.9%	8,296	26.8%	8,607
Ireland	20.4%	8,384	27.8%	11,380
Japan	23.7%	8,353	28.2%	9,957
Netherlands	19.1%	7,954	28.4%	11,838
Finland	21.2%	7,624	25.4%	9,162
Spain	23.1%	7,291	30.4%	9,608
OECD average	**23.2%**	**7,155**	**26.5%**	**9,086**
New Zealand	23.1%	6,842	27.6%	8,170
France	19.2%	6,622	31.6%	10,877
Korea	22.9%	6,601	28.0%	8,060
Poland	29.6%	5,937	27.4%	5,483
Portugal	23.2%	5,922	34.8%	8,882
Israel	**21.7%**	**5,758**	**21.1%**	**5,616**
Slovakia	24.7%	5,732	20.7%	4,806
Estonia	25.6%	5,140	32.1%	6,444
Hungary	22.7%	4,684	22.1%	4,553
Czech Republic	16.2%	4,120	25.8%	6,546
Chile	19.1%	3,301	18.0%	3,110
Mexico	15.3%	2,331	17.3%	2,632
Turkey	11.8%	1,860	15.7%	2,470

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: OECD (2013)

4. Work Force

Table 1 shows that despite (and perhaps because of) the dramatic change in the structure of the teaching job and the increase in the number of teaching hours, the number of teachers in primary education rose by 16 percent between 2008 and 2013, while the number of pupils rose by only 11 percent during the same period. The unequivocal conclusion drawn from these findings is that the fear that the signing of the "New Horizon" agreement would lead to large-scale retirement among teachers was unfounded. The assumption might be that the increase in the number of teachers was made possible by a decrease in the average size of a teaching position, since the variable examined is teaching work force, i.e. the number of teachers and not the number of job positions. It turns out, however, not only did the average teaching position in primary education not decline, it grew slightly (from 76.6 percent before the signing of the agreement – about three-quarters of a full-time job – to 78.3 percent afterwards).

Table 4 points to improvement in other respects relating to the work force in the education system:

- Curtailing the feminization of the profession: Between 2008 and 2013, there was a slight decline in the share of women teachers in Jewish education. While there was a slight increase in the share of women teachers in Arab Israeli education during this period, since overall there are more teachers in Jewish education, the overall share of women in the teaching force declined.[9]

[9] The decline in the share of women in the teaching work force is seen as an improvement for two main reasons: first, since half of the pupils are boys, an increase in the number of male teachers means an improvement in teachers' ability to serve as gender-specific role models. Second, in light of the fact that men's professional bargaining power is greater, an increase in the number of male teachers enhances teachers' ability to gain better working conditions and pay.

- A slowing down of the aging of the teaching staff in the Jewish education system:[10] In 2013, the share of young teachers stood at 12.9 percent, as opposed to 12.8 percent in 2008 and 12.3 percent in 2010. Relative to previous years, this is a substantial slowdown of the trend towards older teachers in the teaching work force. There is no evidence of a similar phenomenon in the Arab Israeli education system, since the growth rate of teachers in this system has slowed considerably.
- Continuing the academization of teaching work force: In the years 2008-2013, the number of teachers who held academic degrees, both first and second degrees, grew considerably. In Arab Israeli education, where the trend is particularly prominent, the share of teachers with academic degrees is already larger than the share in the Jewish education system. This apparently stems from a surplus of Arab Israeli teachers and the limited employment opportunities available to Arab Israeli degree holders in other fields.

Table 4. **Primary school teaching work force characteristics by population groups, 2008 and 2013**

	Jews		Arab Israelis	
	2008	2013	2008	2013
Women	87.9%	86.1%	74.6%	76.8%
Aged 29 or less	12.8%	12.9%	28.6%	20.3%
Aged 50 or over	25.1%	25.8%	12.7%	13.8%
Academic degree	70.5%	81.5%	72.9%	89.3%
Of these: with a second degree	18.4%	22.4%	7.0%	13.2%
Average weekly work hours	22.6	27.5	24.1	30.1
Average years of teaching tenure	15.8	15.8	12.0	13.3

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Central Bureau of Statistics

[10] The Central Bureau of Statistics does not publish this data according to the type of supervisory authority in Jewish education (State, State-religious, or Haredi), so it is not possible to examine whether there are differences among the types of supervisory authority in this context.

In summary, it can be said that in the wake of the signing of the "New Horizon" agreement, the expected negative consequences did not materialize, and instead, several positive developments have taken place with regards to the quality of the teaching work force, as measured by accepted indices.

International Comparison of Teachers' Wages

Since the signing of the "New Horizon" agreement in primary education and in some of the lower secondary schools, teachers' employment terms have somewhat improved. Table 5 shows that, for most teachers, salaries hardly improved between 2000 and 2005. In contrast, in the years after the agreement, salaries in primary education increased more rapidly than in other countries (and more rapidly than the OECD average). Furthermore, since the latest data are for 2010, the situation of teachers in primary education today is even better than indicated by the table. The 2011 data point to a 40 percent increase in wages since 2000, and it may be assumed that the data for 2012, the year in which the transition of all teachers to the "New Horizon" wage agreement was completed, will be even higher.

Table 5. **Comparison of teacher's wages, 2005 and 2010**

with an academic degree and 15 years of seniority, in fixed prices
Base year: 2000=100

	Primary		Lower secondary		Upper secondary	
	2005	**2010**	**2005**	**2010**	**2005**	**2010**
Australia	108	111	108	111	108	111
Austria	111	115	115	120	106	111
Belgium (Flemish)	109	110	103	105	103	105
Belgium (French)	106	111	101	104	101	104
Czech Republic	180	201	180	204	150	178
Italy	106	105	105	105	105	105
Denmark	107	127	107	127	111	126
Iceland	112	116	112	116	111	99
England	109	109	109	109	109	109
Estonia	119	169	119	169	119	169
Finland	117	121	108	111	109	112
France	95	92	95	93	96	93
Greece	113	104	113	104	113	104
Hungary	159	125	159	125	158	117
Ireland	117	135	115	133	115	133
Israel	**100**	**134**	**1,090**	**111**	**99**	**102**
Japan	99	92	99	92	99	92
Korea	125	117	126	117	126	117
Mexico	104	108	105	109	–	–
New Zealand	102	107	102	109	102	112
OECD average	**116**	**122**	**113**	**117**	**115**	**119**
Portugal	114	125	114	125	114	125
Scotland	123	122	123	122	123	122
Spain	105	113	109	116	104	110
Switzerland	103	103	98	98	96	96
USA	104	103	105	103	98	103

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: OECD (2013)

In the lower secondary schools as well, where only some of the teachers joined the agreement, the rate of change in teachers' wages has been more rapid than in the OECD countries. In the upper secondary schools, Israeli teachers still lag behind their OECD counterparts, but in light of the fact that they, too, signed a labor agreement very similar to "New Horizon" in 2011, the data for 2013 and 2014 will almost certainly show an increase (also the budgetary data for these years, as noted in Appendix Table 1, imply the same result).

5. Learning Achievements

The Meitzav Exams[11]

An improvement in the results of the Meitzav exams is evident between 2008 and 2013 in all subjects – both among Hebrew speakers (not including Haredim, who do not take the Meitzav exams) and among Arabic speakers, both in the fifth grade and in the eighth grade. Figure 4, which is taken from Ben-David (2014), shows the improvement trends in the scores. Cumulatively, there was a 10.5 percent improvement among Arabic speakers in the eighth grade in science and technology between 2008 and 2013, and a 9.5 percent improvement among Hebrew speakers during the same years. In the same subject in the fifth grade, the cumulative changes amounted to 13 percent among Arabic speakers and 4.5 percent among Hebrew speakers. In the eighth grade, the cumulative improvement in the mathematics score was 3 percent among Arabic speakers and 3.5 percent among Hebrew speakers, while in the fifth grade, it was 12 percent and 6.5 percent, respectively. Those familiar with

[11] Meitzav is a Hebrew acronym for Measurement of School Growth and Efficiency. These tests are calibrated to allow a comparison over time, and every effort is made to ensure the quality of their administration and reliability. It is, of course, possible that schools today are making a greater effort than in the past to succeed on them, but there is no proof of that.

the education field know that an improvement of this scale is no doubt significant, regardless of the question regarding its cause.

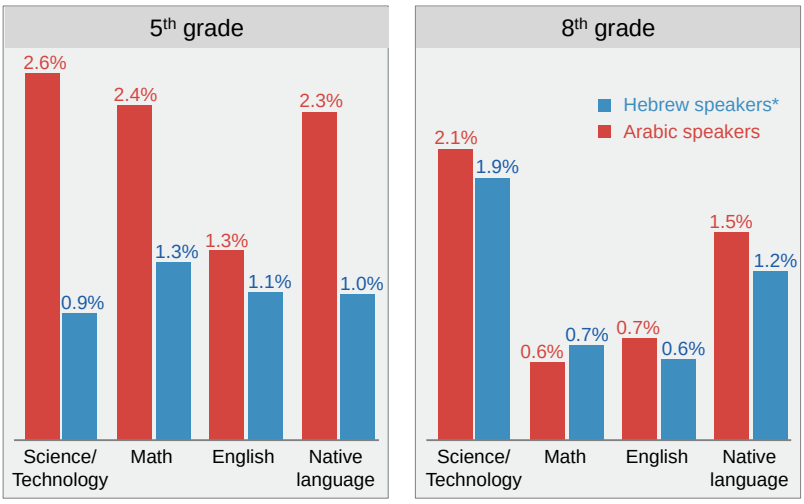
Despite this change, significant gaps were found in the achievements between schools in all the subjects, in all classes, and in every year. Nonetheless, among pupils of a middle-class socioeconomic background, the Arabic-speakers' achievements in a portion of the tests are higher than those of Hebrew-speakers.[12]

[12] It is a legitimate question which part of the improvement in achievement stems from the contribution of the education system, and which part can be attributed to the change in the socioeconomic and demographic structure of society in Israel (Hanushek, 2003; Shavit and Bronstein, 2011; Zussman and Tsur, 2008). However, deciding this question is of no significance to the present discussion for three reasons. First, the discussion deals with a relatively very short period of time, in which it would be difficult for changes in the social structure to be seen. Second, Haredi pupils do not participate in the Meitzav tests. And third, the data show that there has been improvement both in Jewish education and in Arab Israeli education – and the improvement among Arab Israelis is greater.

Figure 4

Improvements in achievement in core subjects

average annual change in Meitzav** exam scores, 2008-2013



* Does not include Haredim (ultra-Orthodox)

** Measures of School Efficiency and Growth

Source: Dan Ben-David, *State of the Nation Report 2014*, Taub Center

Data: National Authority for Measurement and Evaluation in Education (RAMA)

Matriculation Exams

According to Ministry of Education data, the share of those eligible for matriculation out of the entire age cohort rose from about 46.3 percent for the school year ending in 2007 to 48.6 percent at the end of the 2012 school year (Ministry of Education and Culture, 2013). This may appear to be negligible, but it should be seen in the context of the large increase in the number of boys and girls who do not study the Israeli core curriculum and do not take the matriculation exams (in particular, Haredim and Arab Israelis in East Jerusalem, whose combined share of the entire population rose from 15.1 percent in 2007 to 19 percent in

2012). Among the main groups of pupils who do take the matriculation exams (pupils in State and State-religious education, both Jews and Arab Israelis, and Haredim attending institutions that offer matriculation to their pupils), the eligibility rate rose from 59.1 percent in 2007 to 66.6 percent for non-Haredi Jews in 2012, and from 35.5 percent to 42.4 percent for Arab Israelis (Figure 5).

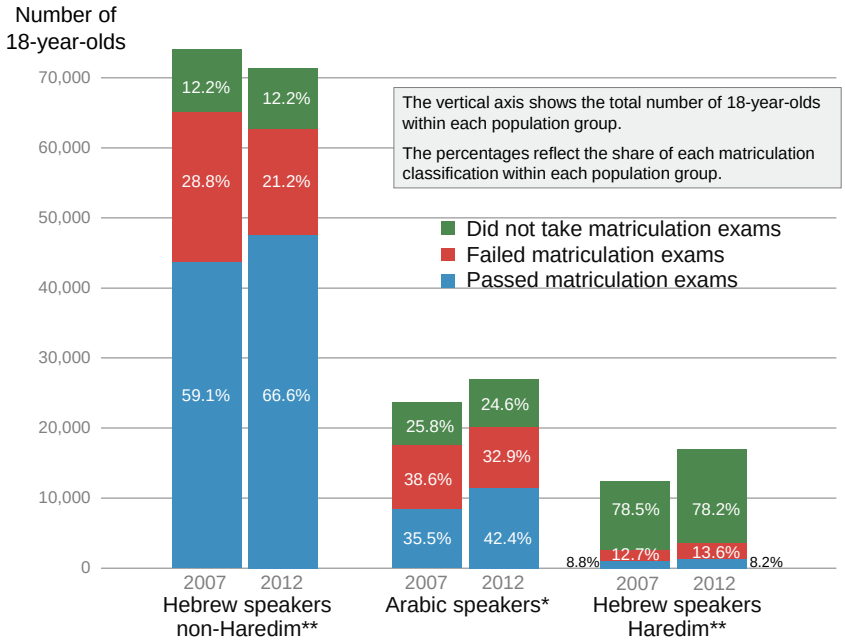
It is important to emphasize that the share of eligibility for matriculation that is measured at the end of secondary school studies as of 2012 stands at 62.4 percent of all pupils in the twelfth grade and, as noted, at 49.8 percent of the entire age cohort (not shown in the figure) is not the final figure. A large portion (25 percent) of those who failed the matriculation exams at the end of their secondary school studies continue to complete the exams and are eligible for a certificate in the years following secondary school. Relying on figures from the past, the final matriculation qualification rate should have an additional 6 percent added for those completing the exams after twelfth grade as well as another 1-1.5 percent for those who took the matriculation exams as external students. Ultimately, the eligibility rate that correctly reflects the trends in the education system is in the range of 60 percent.[13]

[13] To this figure, the 1-1.5 percent of those eligible for matriculation who take external exams should also be added.

Figure 5

Distribution of 12th grade age cohort

by population group and matriculation status



* Does not include East Jerusalem

** Haredim are ultra-Orthodox Jews

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel

Data: Ministry of Education

There are those who claim that the rise in the eligibility rate stems from a decline in the exams' difficulty level, but this has yet to be shown by the research. On the other hand, it is known that the share of pupils who study for a larger number of matriculation units has grown over the years. There are also those who argue that the number of pupils studying sciences and technology, and their share among all students taking the matriculation exams, is declining. On this issue too, however, the data show that the reality differs from the perception. While from 1995 to

2010, the number of pupils rose by only 14 percent, the rates of those eligible for matriculation in mathematics, physics and biology increased far beyond this figure (Blass, 2014).[14] Considering the changes that have occurred in the demographic composition of the pupil population, there has been significant progress that contradicts the public perception of deficits in the teaching of the sciences.

Despite this positive data, the State Comptroller has pointed to a worrying phenomenon, namely a decline in the number and rate of pupils who take the exams in mathematics at the four or five unit level (Figure 6). However, these data should be seen in relation to the demographic changes in the twelfth-grade pupil population during this period. According to Ministry of Education data, the number of Jewish pupils in State and State-religious schools (the population group in which the share of those taking the matriculation exams is relatively high) declined by about 3,000 from 2007 to 2012 and the number of pupils declined by a similar number. In contrast, the number of Haredi pupils attending the twelfth grade (the vast majority of whom do not take the mathematics exams at the five-unit level) rose by 4,500 between 2007 and 2012, and the number of non-Jewish pupils (whose matriculation achievements are lower) also rose by about 3,000. (In other words, between 2007 and 2012, the number of "strong" pupils fell by about 3,000 and the number of "weak" pupils rose by about 7,500.)[15]

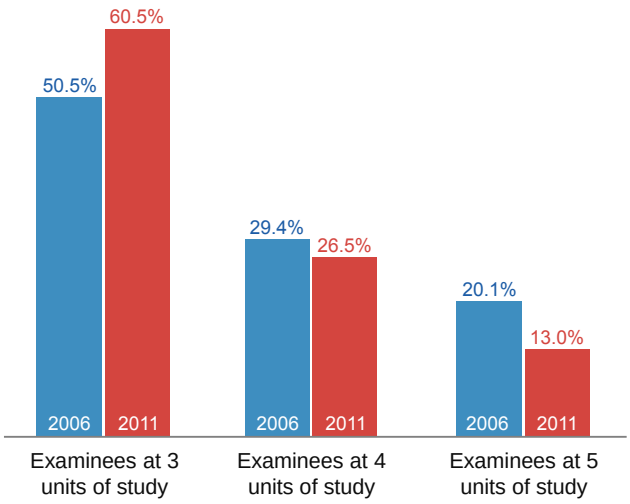
[14] There is no detailed data for pupils taking the matriculation exams in the sciences because the Ministry of Education has stopped publishing these numbers. According to the Central Bureau of Statistics, the number taking the exams at a level that includes at least two science and/or technology units has remained the same (22.9 percent in 2013 versus 23.2 percent in 2006), while the number of those taking the exams with an emphasis on technological studies (more units in technology than in humanities), rose from 17.6 percent to 21.2 percent.

[15] It goes without saying that not all the pupils in State and State-religious education are "strong," and not all pupils in Arab Israeli and Haredi education are "weak." Nonetheless, this generalization regarding pupils' ability to succeed in the matriculation exam in mathematics at the five-unit level according to their education system is very close to the reality.

Figure 6

Distribution of examinees in math by matriculation units of study

as percent of all examinees, 2006 and 2011



Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: *State Comptroller's Report 2014*

These developments at least in part explain the decline in the rate of those taking and completing the matriculation exams at the five-unit level for mathematics (Figure 6). Even if the demographic trends are taken into consideration, the question arises: Why is the rate of pupils who choose not to study at the higher unit levels rising? The answer may lie in two approaches: on the one hand, there is a growing tendency to judge the school's quality by its matriculation eligibility rates, which greatly influences the policy of both school principals and teachers; and on the other hand, there is a rise in a more functional approach to taking the matriculation exams that gives greater importance to the overall average score. Pupils and teachers calculate and consider what is best for them: a relatively high score at a low examination level or a low score at a high

examination level. Such calculations were also done in the past, but they seem to be gaining in popularity.[16]

International Tests

Many believe that Israel's performance in international exams attests to the poor level of education in Israel, and even more so, to the lower chances of successful integration into the world economy in the future. In contrast, others are opposed to drawing such conclusions from the scores on these tests, and especially to the ranking of countries according to the average achievement level of their pupils. (Recently, 101 educational international scholars wrote an open letter to the administrator of the PISA tests, demanding that the tests in 2015 be cancelled because of the damage they were causing to national education systems, and the overblown significance the heads of those systems were ascribing to these tests; *The Guardian*, 2014.)

This current discussion does not deal with the importance of international tests and their national significance, but only with the issue of whether Israeli pupils' achievements on these tests have improved during the period under study. The answer to that question is

[16] After the completion of this chapter, the results of the 2013 matriculation exams were made public (without details of the data by subject matter or socioeconomic classification of the school location. The reasons for this are unclear). The authors of this chapter feel that the most significant trend in the 2013 data is not the steep rise in the rate of those qualifying in each sector (although this is quite important in and of itself), but the impressive rate of those completing twelfth grade and the rate of those taking the matriculation exams. The rise in the matriculation qualifying rate, which has reached over 50 percent of the age group for the first time since the establishment of the State (and not for the first time in 20 years as was written in the press release) can be attributed to a drop in the level of the tests – which has never been proven – or to a rise in the number of pupils taking the exams. The Ministry of Education is to be commended for this. A rise of more than 3 percent in the number of pupils taking the matriculation exams is a significant accomplishment when this group includes pupils from the weakest sectors of the population.

unequivocal: Israeli pupils improved their achievements considerably. When their achievements are compared to those of pupils in all the participating countries, a very positive picture emerges regarding Israel's progress, both with regards to overall scores and in the reduction of the share of weak pupils and increase in the share of strong pupils.

TIMSS test.[17] Between 2007 and 2011, there was a dramatic improvement in Israeli pupil achievement on the TIMSS test, both in terms of the score itself and Israel's international ranking (Table 6). Such large increases in scores and ranking are very rare, and often are not repeated on subsequent tests. With the publication of the results, a bitter argument erupted (exacerbated in light of the fact that the publication occurred shortly before elections to the Knesset) concerning what caused the leap: could it be attributed to the policy undertaken by the heads of the system, or were other factors that had nothing to do with ongoing educational activity responsible? In retrospect, the truth appears to lie somewhere in the middle: the Ministry of Education and RAMA (Hebrew acronym for National Authority for Measurement and Evaluation) have strengthened Israeli pupil achievement, and the critics' claim that the results are unreliable was overblown. The 2007 data were exceptionally low for various reasons, including the fact that the test was administered during the great teachers' strike. The 2011 data, however, were apparently bolstered by changes in translation, better pupil preparation through adjusting educational material specifically to the subjects examined on the TIMSS tests, and additional teaching hours (all of which are entirely legitimate means).

A look at the results presented in Table 6 shows that of the 21 countries that participated in all the TIMSS tests for the eighth grade since 1999 – including individual states in the United States (Massachusetts) and provinces in Canada (Ontario and Quebec) – Israel had the largest increase in its average score. The country's place in the

[17] The Trends in International Mathematics and Science Study (TIMSS) is the oldest of the international tests. Fourth and eighth graders are examined in sciences and mathematics. In Israel, only eighth graders take the test.

ranking also had the steepest rise.[18] While the achievement level of Israeli pupils is not spectacular in comparison to that of pupils in other countries, the improved achievements in Israel are certainly impressive (the standard deviation has hardly changed, standing at 99 points in 2011 versus 98 points in 2007).

Table 6. **Comparison of achievements on TIMSS test by country, 2007 and 2011** (continued on next page)

average score on science and math in eighth grade in all countries that gave the tests continuously from 1999 to 2011, ordered by change in rank

	2007		2011			
	Score	**Rank**	**Score**	**Rank**	**Difference in score**	**Difference in rank**
Israel	**463**	**16**	**514**	**9**	**51**	**7**
Russia	512	11	539	7	27	4
Romania	431	18	458	16	27	2
USA	508	12	509	11	1	1
Singapore	593	3	611	2	18	1
Korea	597	2	613	1	16	1
Iran	403	21	415	21	12	0
Hong Kong	572	4	586	4	14	0
Japan	570	5	570	5	0	0
Massachusetts*	547	6	561	6	14	0
Tunisia	420	20	425	20	5	0
Italy	480	14	498	15	18	-1

[18] In the same context, it bears mention that the share of weak pupils in Israel dropped from 25 percent in 2007 to 13 percent in 2011, with a corresponding drop in the percentage of weak students taking the PISA tests (see data in Table 9).

Table 6. (continued from previous page) **Comparison of achievements on TIMSS test by country, 2007 and 2011**

average score on science and math in eight grade in all countries that gave the tests continuously from 1999, ordered by change in rank

	2007		2011			
	Score	Rank	Score	Rank	Difference in score	Difference in rank
Lithuania	506	13	502	14	-4	-1
Quebec*	528	7	532	8	4	-1
Ontario*	517	8	512	10	-5	-2
England	513	10	507	12	-6	-2
Taiwan	598	1	609	3	11	-2
Malaysia	474	15	440	17	-34	-2
Thailand	441	17	427	19	-14	-2
Jordan	427	19	406	22	-21	-3
Hungary	517	9	505	13	-12	-4

* State or territory in the USA/Canada

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: TIMSS 2007 and TIMSS 2011 Reports

PIRLS tests.[19] The results of the PIRLS tests for 2011 were similar to the results of the TIMSS test conducted the same year. Israel placed second after Iran in terms of its improved score, and third after England and the United States in terms of its improved ranking (Table 7). Here too, Israel's achievements remained low relative to most of the countries, but a process of improvement is certainly evident.

[19] The Progress in International Reading Literacy Study (PIRLS) tests examine literacy for fourth and fifth graders.

Table 7. **Comparison of achievements on the PIRLS tests by country, 2006 and 2011**

average score in reading and language skills in countries that participated in the tests, ordered by change in rank

	2006		2011			
	Score	Rank	Score	Rank	Difference in score	Difference in rank
England	539	12	552	5	13	7
USA	540	11	556	4	16	7
Israel	**512**	**18**	**541**	**12**	**29**	**6**
Quebec*	533	13	548	7	15	6
Hong Kong	564	2	571	1	7	1
Slovakia	531	15	535	14	4	1
Singapore	558	3	567	3	9	0
Ontario*	554	5	548	6	-6	-1
Iran	421	21	457	22	36	-1
Morocco	323	22	310	23	-13	-1
Norway	498	19	507	20	9	-1
Slovenia	522	16	530	17	8	-1
Romania	439	20	502	21	13	-1
Russia	565	1	568	2	3	-1
Sweden	549	8	542	9	-7	-1
New Zealand	532	14	531	16	-1	-2
France	522	17	520	19	-2	-2
Italy	551	6	541	10	-10	-4
Netherlands	557	4	546	8	-11	-4
Bulgaria	547	10	532	15	-15	-5
Hungary	551	7	539	13	-12	-6

* Territory in Canada

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: PIRLS 2006 and 2011 Reports

PISA tests.[20] On the PISA tests administered in 2012, Israel ranked in second place with regards to the improved average score of its pupils, and was among only 10 countries that improved their scores relative to 2009 (out of 26 countries that participated in both tests). With regard to the improvement in ranking, Israel placed tenth (Table 8).

Among the prominent low-ranked countries were Australia – whose pupils' scores dropped by 10 points between 2009 and 2012, and whose ranking fell from 8th to 9th place – and New Zealand –whose pupils' scores dropped by 19 points, and whose ranking fell from 6th to 11th place. Since the early 1990s, both of these countries have undergone far-reaching neoliberal educational reforms: more decentralization, independent management, reduction of Ministry of Education bureaucracy, and the like.[21] The achievements of pupils in the United States also dropped by 6 points, and the country's ranking fell from 20th to 21st place, despite all the efforts invested in the framework of the No Child Left Behind Act (NCLB). During the same period, Finnish pupils' scores dropped by 22 points, and the country fell from 2nd to 4th place in the achievements ranking.

Furthermore, Israel significantly reduced the share of pupils scoring in the lowest levels in the sciences, (third-highest improvement following Turkey and Poland) (Table 9). From among 34 countries, Israel had the eleventh largest improvement in the share of pupils whose scores were at the highest levels.

[20] The Programme for International Student Assessment (PISA) aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students.

[21] It is interesting to note that Poland, the country that advanced the most on the PISA tests, underwent a far-reaching reform very similar to the reform in Israel in 1967, which included the establishment of lower secondary schools and comprehensive schools.

Table 8. **Comparison of achievements on PISA exams by country, 2009 and 2012**

average score in math in all countries that participated in the tests, ordered by change in rank

	2009		2012			
	Score	**Rank**	**Score**	**Rank**	**Difference in score**	**Difference in rank**
Ireland	487	19	501	10	14	9
Poland	495	14	518	6	23	8
Austria	496	13	506	8	10	5
Italy	483	23	485	19	2	4
Czech Republic	493	16	499	13	6	3
Portugal	487	21	487	18	0	3
Japan	529	4	536	2	7	2
Luxembourg	489	18	490	16	1	2
Spain	483	22	484	20	1	2
Israel	**447**	**25**	**466**	**24**	**19**	**1**
Belgium	515	7	515	7	0	0
Mexico	419	26	413	26	-6	0
Korea	546	1	546	1	0	0
Canada	527	5	518	5	-9	0
Switzerland	534	3	531	3	-3	0
Australia	514	8	504	9	-10	-1
USA	487	20	481	21	-6	-1
Greece	466	24	453	25	-13	-1
France	497	12	495	14	-2	-2
Denmark	503	10	500	12	-3	-2
Finland	541	2	519	4	-22	-2
New Zealand	519	6	500	11	-19	-5
Norway	498	11	489	17	-9	-6
Iceland	507	9	493	15	-14	-6
Hungary	490	17	477	23	-13	-6
Sweden	494	15	478	22	-16	-7

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: PISA 2009 and 2012 Reports

Table 9. **Percent of strong and weak science pupils on the PISA exams**
(continued on next page)

in all countries that participated in the testing in the relevant years, ordered by change between 2006 and 2012 in percentage of weak pupils*

	% of strong pupils (over Level 5 out of 6 levels)			% of weak pupils (below Level 2 out of 6 levels)		
	2006	2012	Difference between 2006 and 2012	2006	2012	Difference between 2006 and 2012
Turkey	0.9%	1.8%	0.9%	46.6%	26.4%	-20.2%
Poland	6.8%	10.8%	4.0%	17.0%	9.0%	-8.0%
Israel	**5.2%**	**5.8%**	**0.6%**	**36.1%**	**28.9%**	**-7.2%**
Italy	4.6%	6.1%	1.5%	25.3%	18.7%	-6.6%
USA	9.1%	7.5%	-1.6%	24.4%	18.1%	-6.3%
Portugal	3.1%	4.5%	1.4%	24.5%	19.0%	-5.5%
Chile	1.9%	1.0%	-0.9%	39.7%	34.5%	-5.2%
Korea	10.3%	11.7%	1.4%	11.2%	6.6%	-4.6%
Ireland	9.4%	10.7%	1.3%	15.5%	11.1%	-4.4%
Mexico	0.3%	0.1%	-0.2%	50.9%	47.0%	-3.9%
Spain	4.9%	4.8%	-0.1%	19.6%	15.7%	-3.9%
Japan	15.1%	18.2%	3.1%	12.0%	8.5%	-3.5%
Switzerland	10.5%	9.3%	-1.2%	16.1%	12.8%	-3.3%
Germany	11.8%	12.2%	0.4%	15.4%	12.2%	-3.2%
Estonia	11.5%	12.8%	1.3%	7.7%	5.0%	-2.7%
France	8.0%	7.9%	-0.1%	21.2%	18.7%	-2.4%
OECD average	**8.9%**	**8.4%**	**-0.5%**	**19.8%**	**17.8%**	**-2.01%**
England	13.7%	11.2%	-2.5%	16.7%	15.0%	-1.7%
Czech Republic	11.6%	7.6%	-4.0%	15.5%	13.8%	-1.7%
Denmark	6.8%	6.8%	0.0%	18.4%	16.7%	-1.7%
Norway	6.1%	7.5%	1.4%	21.1%	19.6%	-1.5%
Slovenia	12.9%	9.6%	-3.3%	13.9%	12.9%	-1.0%
Austria	10.0%	7.9%	-2.1%	16.3%	15.8%	-0.5%
Luxembourg	5.9%	8.2%	2.3%	22.1%	22.2%	0.1%

Table 9. (continued from previous page) **Percent of strong and weak science pupils on the PISA exams**

in all countries that participated in the testing in the relevant years, ordered by change between 2006 and 2012 in percent of weak pupils*

	% of strong pupils (over Level 5 out of 6 levels)			% of weak pupils (below Level 2 out of 6 levels)		
	2006	2012	Difference between 2006 and 2012	2006	2012	Difference between 2006 and 2012
Netherlands	13.1%	11.8%	-1.3%	13.0%	13.1%	0.1%
Canada	14.4%	11.3%	-3.1%	10.0%	10.4%	0.4%
Belgium	10.1%	9.1%	-1.0%	17.0%	17.7%	0.7%
Australia	14.6%	13.6%	-1.0%	12.9%	13.6%	0.7%
Greece	3.4%	2.5%	-0.9%	24.0%	25.5%	1.5%
New Zealand	17.6%	13.4%	-4.2%	13.7%	16.3%	2.6%
Hungary	6.9%	5.9%	-1.0%	15.0%	18.0%	3.0%
Iceland	6.3%	5.2%	-1.1%	20.6%	24.0%	3.4%
Finland	20.9%	17.1%	-3.8%	4.1%	0.7%	3.6%
Sweden	7.9%	6.3%	-1.6%	16.4%	22.2%	5.8%
Slovakia	5.8%	4.9%	-0.9%	20.2%	26.9%	6.7%

* Results on these tests are divided into 6 levels (or 7, when the first level is divided into two). Pupils scoring at or below 262 points are considered to be in Level 1, while pupils scoring at or above 698 are considered to be in Level 6. The average score is 500.

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: PISA (2012)

In light of all of this, it appears that Israel's situation, which was poor in terms of pupil achievement relative to other countries in the early 2000s, has not worsened and perhaps has even improved.

6. The Environment and Learning Atmosphere in Schools

The learning atmosphere in schools is a topic of no less importance than learning achievements, and has received considerable media attention. This attention has focused often more on serious cases of violence among pupils and between pupils and teachers. The pupil and teacher questionnaires in the Meitzav tests afford a glimpse beyond the serious and exceptional incidents, and allow for focus on the ongoing trends (although in some cases, the improvement is still insufficient). This section presents some of the findings related to learning atmosphere during the years 2008-2013:[22]

- With regards to pupils' general attitude towards school, there has been a rise in the rates of those reporting a generally positive attitude. Among teachers, the level of satisfaction has remained stable at 70 percent.
- An improvement is evident in the relations between teachers and pupils at all age levels, in both Jewish and Arab-Israeli education (with the exception of Arab Israeli upper secondary schools).
- There has been a downward trend in the share of students reporting a lack of feeling safe at school (except among tenth and eleventh graders), and there has been a moderate drop in the share of fifth and sixth graders reporting involvement in violent incidents.
- There has been a drop in the share of teachers reporting feeling a lack of safety at school.
- The trend shows an improvement in appropriate behavior in classes at all age levels, in both Jewish and Arab Israeli education (except among Arab Israeli tenth- and eleventh-grade pupils, where the situation is stable).

[22] All of the findings appear in the summary report for 2013 on the RAMA website.

These findings were verified and confirmed in another large study (RAMA, 2014), which was devoted entirely to monitoring school violence. The study included over 20,000 pupils in primary, lower and upper secondary education, and showed that between 2009 and 2013, there was improvement in most measures (i.e., there was a drop in reports of violence), and there was no worsening in any of the indicators. The declines in the rate of pupils reporting aggravated violence, social violence, violence on the part of teaching staff and towards teaching staff, sexual violence, violence on buses, and alcohol abuse were particularly prominent. This trend encompasses all age groups, but is especially prominent in primary education – where the level of violence, both in the past and present, is the highest. There has also been improvement in the lower secondary schools. In the upper secondary schools, some measures have shown improvement while others have remained stable. The improvement is evident in both Jewish and Arab-Israeli education, but is especially striking in the Arab-Israeli schools.[23]

Narrowing the Gaps Between Jewish and Arab-Israeli Education

One of the most serious, ongoing failures of the education system in Israel is the vast gap between the resources allocated to Jewish education and those allocated to Arab Israeli education, as well as pupil achievement in each of these education systems. This grave failure has cast a long shadow over the policy of the Ministry of Education throughout the years. Nonetheless, in this area, too, there has been improvement in recent years with regards to the resources allocated to the Arab Israeli education system, its work force, and pupil achievement.

As noted, the education system has enjoyed a significant increase in the resources at its disposal in recent years. Figure 7 shows that

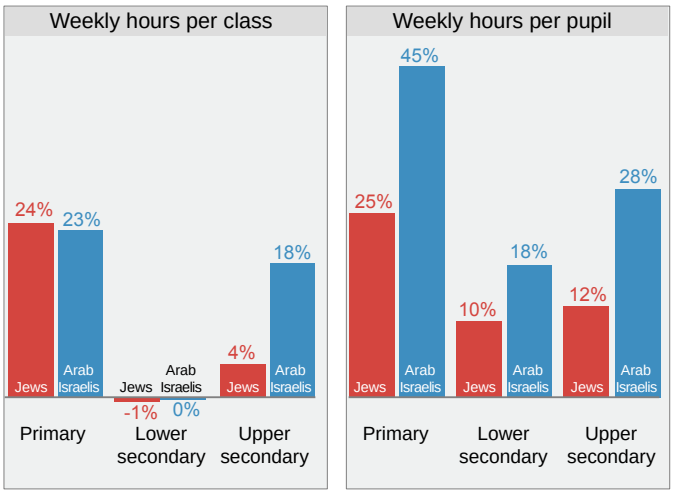
[23] Major improvement was noted between the first two measurement periods (between 2009 and 2011). When the results of the third measurement period (2013) are compared to those of the second measurement period (2011), the data generally show stability, albeit with a slight drop in the primary schools.

differential use has been made of these resources, which has compensated somewhat for the continued discrimination. In primary education, the per class budget, expressed by the weekly teaching hours allocated to each class, was already higher in Arab Israeli education in 2005, but the per pupil budget was significantly lower (the reason being that the average class size in Arab Israeli education was much larger). Due to the increase in resources allocated to the primary education system, the increase in weekly hours per class was similar in the Arab and Jewish education systems. In contrast, the per pupil allocation in Arab Israeli education was much larger, mainly as a result of a reduction in class size, which was made possible by new construction and a decline in the natural growth rate. A similar process is taking place in post-primary education, although there the allocation per pupil in the Arab Israeli system is still lower than the allocation in Jewish education.

Figure 7

Changes in weekly study hours per class and pupil

by education level, between 2005 and 2013



Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Central Bureau of Statistics

With regards to teaching work force, there have been impressive developments in both primary and post-primary education. The attributes of the work force in the Arab-Israeli system are becoming more and more similar to those in the Jewish system (see Section 4 on the topic of work force and Appendix Table 2).

In the area of learning achievements, while the gaps remain very large, the pupils in Arab-Israeli education are making faster progress than the pupils in Jewish education. This is true in both the fifth and eighth grades, as shown in Figure 5 previously. Nonetheless, the progress in these younger age groups is not manifested in the attendance rates in post-primary education or in the percentage eligible for matriculation. Despite the overall progress, gaps remain.

7. Summary

The findings of this chapter clearly indicate that in the areas where the system aims to improve – teacher working conditions and their professional educational level, achievements on national and international tests, the gaps between Jewish and Arab Israeli pupils in both resource allocation and achievements, and school environment – there has been improvement. Nonetheless, the improvements are still far from satisfactory in these areas as well as in other areas of education that do not garner the same attention (see the declaration of goals in the State Education Law in Appendix 3). As shown in this chapter, the general improvement indicates that the efforts have paid off, and thus similar efforts should be demanded in other areas where improvement is needed. Some of the most pressing needs include: changing the education system budgetary method to be based on differential budgeting according to socioeconomic background data, improving the quality of teaching, and putting greater emphasis on improving the school environment, especially in relations between pupils, and between teachers, pupils, and parents.

Appendices

Appendix Table 1. **Allocation to decrease pupils per class, 2009-2012**
in original, amended and final budget
(2012 prices, in thousands)

Year	Original budget	Amended budget	Final budget
Primary			
2009*	71,635	0	0
2010	57,571	3	3
2011	56,687	0	0
2012	262,686	0	0
Total Primary	**448,583**	**3**	**3**
Post-primary			
2010	53,417	66,850	66,850
2011	118,507	106,286	102,492
2012	139,577	104,643	104,471
Total post-primary	**311,501**	**277,779**	**273,813**
Overall total	**760,084**	**277,782**	**273,816**

* There is no 2009 data for "decreasing class size in post-primary schools." Although other budget lines were involved in this issue, there were no monies allocated in any of the budgets in that year.

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Ministry of Finance

Appendix Table 2. **Distribution of teaching work force in secondary education by selected characteristics**

by level of education and population groups, 2005 and 2013

	Jewish system		Arab Israeli system	
	2005	2013	2005	2013
Lower secondary				
Women	83.3%	80.1%	51.0%	65.6%
Under 29-years-old	6.0%	6.6%	24.4%	18.0%
Over 50-years-old	31.5%	34.7%	12.7%	14.4%
Academic pay grade	87.9%	92.8%	79.4%	95.6%
MA level pay grade or higher	32.5%	41.7%	15.2%	23.2%
Average weekly work hours	20.9	19.0	21.2	27.2
Average years of seniority in teaching	18.1	18.5	13.4	13.7
Upper secondary				
Women	70.7%	73.4%	40.5%	50.5%
Under 29-years-old	7.6%	6.8%	21.0%	17.5%
Over 50-years-old	36.6%	39.0%	14.5%	20.0%
Academic pay grade	81.3%	87.2%	80.7%	89.7%
MA level pay grade or higher	33.2%	41.1%	20.8%	28.9%
Average weekly work hours	18.7	19.9	22.5	25.9
Average years of seniority in teaching	19.6	19.5	13.4	14.3

Source: Nachum Blass, Taub Center for Social Policy Studies in Israel
Data: Ministry of Education

Appendix 3. *State Education Law (2000 Amendment)*

The goals of State education are:

1. To educate a person to love his fellow man, his nation and his country, to be a loyal citizen of the State of Israel, who respects his parents and his family, his heritage, his cultural identity and his tongue;
2. To inculcate the principles in the Declaration of the State of Israel's Establishment and the values of the State of Israel as a Jewish and democratic state and to develop an attitude of respect for human rights, for the basic freedoms, for democratic values, for obeying the law, and for the culture and opinions of others; and also to educate toward striving for peace and tolerance in the relations between persons and between nations;
3. To teach the history of the Land of Israel and the State of Israel;
4. To teach the Torah of Israel, the history of the Jewish people, the heritage of Israel and Jewish tradition; to inculcate a consciousness and respect for the memory of the Holocaust and the Heroism;
5. To develop the character of the boy and girl, their creativity and their various talents, towards the full exploitation of their ability as human beings living a life of quality and meaning;
6. To acquaint boy and girl with the various fields of knowledge and science, with all types of human accomplishment from the past to the present, and with the basic skills they will need in their lives as adults in a free society; and to encourage physical activity and leisure culture.
7. To strengthen the faculty of judgment and critique, to cultivate intellectual curiosity, independent thinking and initiative, and to develop an awareness of changes and innovations;

8. To grant equality of opportunity to every boy and girl, to enable them to develop in their own way, and to foster an atmosphere that encourages and supports diversity;
9. To cultivate involvement in Israeli social life, a willingness to accept responsibilities and dispatch them with devotion and accountability, a desire for mutual assistance, contributing to the community, volunteerism, and striving for social justice in the State of Israel;
10. To develop an attitude of respect and responsibility towards the natural environment and a bond with the land, its landscapes, the animals that inhabit it, and what grows upon it;
11. To be familiar with the language, culture, history, heritage and unique tradition of the Arab population and of other population groups in the State of Israel, and to recognize the equal rights of all Israel's citizens.

References

English

Andrews, Paul et al. (2014), "OECD and PISA tests are damaging education worldwide – academics," *The Guardian*, May 5, 2014, theguardian.com/education/2014/may/06/oecd-pisa-tests-damaging-education-academics.

Ben-David, Dan (2014), *A Picture of the Nation 2014*, Taub Center for Social Policy Studies in Israel.

Blass, Nachum (2013), "Trends in the Development of the Education System: Pupils and Teachers," in Dan Ben-David (ed.), *State of the Nation Report: Society, Economy and Policy 2013*, Taub Center for Social Policy Studies in Israel, pp. 277-299.

Blass, Nachum (2014), *Bagrut Exams: Issues and Recommendations for Reform*, Policy Paper 2014.02, Taub Center for Social Policy Studies in Israel.

Hanushek, Eric (2003), "The Toughest Battleground: Schools," in Mark A. Wynne, Harvey Rosenblum, and Robert L. Formaini (eds.), *The Legacy of Milton and Rose Friedman's Free to Choose: Economic Liberalism at the Turn of the 21st Century*, Federal Reserve Bank of Dallas.

OECD (2012), *Education at a Glance*, OECD data base.

PISA data source, various years, OECD publications, oecd.org/pisa/.

PIRLS data source, various years, timssandpirls.bc.edu/pirls2011/international-database.html.

Shavit, Yossi and Vicki Bronstein (2011), "Education Reform and Narrowing Educational Gaps in Israel," in Dan Ben-David (ed.), *State of the Nation Report: Society, Economy and Policy 2010*, Taub Center for Social Policy Studies in Israel, pp. 283-302.

TIMSS data source, various years, timssandpirls.bc.edu/pirls2011/international-database.html.

Hebrew

Blass, Nachum (2008), *Class Size Reduction Reform: Budgetary and Educational Implications*, Policy Paper, Taub Center for Social Policy Studies in Israel.

Central Bureau of Statistics, *Statistical Abstract of Israel*, various years.

Ministry of Education (2013), *Presentation of Data on Pupils Passing Bagrut Exams 2011-2012*, Ministry of Education website.

RAMA (National Authority for Measurement and Evaluation in Education) (2014), *Monitoring the Level of Violence in Schools by Pupil Reports: Data from Surveys of Monitoring Violence, 2012-2013, 2010-2011, 2008-2009*.

State Comptroller (2014), *Annual Report 64C*.

Zussman, Noam and Shay Tsur (2008), *The Effect of Israeli Students' Socioeconomic Background on Their Achievements in the Matriculation Examinations*, Discussion Paper 2008.11, Bank of Israel.