Chapter 5. **Improving literacy and numeracy in vocational education and training (VET) programmes in Israel**

The basic skills of numeracy and literacy are positively associated with a range of important economic and social outcomes both for individuals and countries. In Israel, the basic skills of the adult population are weak in comparison to other OECD countries. This chapter argues that, in the context of vocational education and training (VET) programmes, improving the basic skills of Israeli population would lead to economic and non-economic benefits such as stronger productivity and a more equal society. Israel should ensure adequate levels of literacy and numeracy in all VET students, identifying the weakest performers and targeting teaching resources on them to improve their basic skills. Chapter 5 also argues that Israel may build basic skills education systematically into adult programmes. Basic skills are particularly low among Arab Israelis and Haredi Jews. Addressing basis skills weaknesses in the disadvantaged and underperforming populations should be a priority.

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The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.
Introduction: Comparing basic skills in Israel with other countries

Basic skills are important

Basic skills of numeracy and literacy have a major impact on life chances, being positively associated with a range of important economic and social outcomes both for individuals and countries (OECD, 2016; Hanushek et al., 2015 and Grotlüschen et al., 2016). They are also very important in vocational education and training, as jobs require basic, transferable skills, as well as occupation-specific skills. Basic skills also support further learning, and many VET graduates will want to, or need to continue to learn, formally and informally, throughout their lives. This chapter argues that, in the context of VET programmes, improving the basic skills of Israeli adults would lead to economic and non-economic benefits such as stronger productivity and more equal society.

How the low-skilled are defined in this report

In this chapter “low-skilled” is used as shorthand for those who are at or below Level 2 in literacy or numeracy in the Survey of Adult Skills (PIAAC), recognising that they may have good levels of other skills, including practical occupational skills. The skills measured are those of everyday life, such as skills required to read a petrol gauge and understand how to sensibly take painkillers.

Almost two million adults in Israel have low skills

According to the Survey of Adult Skills, around 1.7 million, or 37% of Israeli adults have low levels of literacy or numeracy, or both, well above the OECD average of 27% (see Figure 5.1).

The risk of being low-skilled is higher for Arabs and in traditional and religious Jewish communities

In the Arab population the share of low-skilled is twice as high as among Jews (60% vs. 30%), but even within the Jewish population of Israel, the risk of being low-skilled is higher than the OECD average, with the share of low-skilled in traditional and religious Jewish communities reaching 50%, compared to 20% among non-religious secular Jews. Arab women are the most vulnerable group with around 65% of them being low-skilled, compared to 31% of Jewish women.

Other characteristics of the low-skilled in Israel

As in other countries, the low-skilled tend to be less educated, come from less advantaged backgrounds and tend to be older. Thus:

- In Israel around 40% of young adults (16-40 year-olds) with below upper-secondary qualifications as their highest qualification (primary school and junior high school) are low-skilled compared to 14% of those with tertiary (university) qualifications.
- The low-skilled are more likely to come from less well educated families nearly everywhere. But the association between family background (measured by parental education) and skills is particularly strong in Israel.
- As in most countries, older Israelis are more likely to be low-skilled. More than half (53%) of those aged 55-65 years are low-skilled, twice the proportion (27%) of 25-34 year-old Israelis. This partly reflects better education among young people, but also other factors.
• According to data from the Survey of Adult Skills two-thirds of the low-skilled in Israel are in work.

**Figure 5.1. Israel has a higher proportion of low-skilled adults than most countries**

Percentage of the adult population aged 16-65


StatLink [http://dx.doi.org/10.1787/888933734930](http://dx.doi.org/10.1787/888933734930)

**Figure 5.2. Share of low-skilled and absolute numbers in different population groups**


StatLink [http://dx.doi.org/10.1787/888933734949](http://dx.doi.org/10.1787/888933734949)
Policy options: Addressing basic skills challenge in VET and apprenticeship programmes

In Israel, a large share of young people leave initial VET with poor basic skills, and this may be one reason why, as explained in Chapter 2, there is no wage premium associated with this qualification. Often, the low basic skills of VET graduates will reflect weaknesses in the entrant population to these upper-secondary tracks. But there is also some evidence pointing to low quality teaching leading to modest skills acquisition in some programmes.

- Israel should therefore invest in initial VET, including youth apprenticeships and technological education under the responsibility of the Ministry of Education, to ensure adequate levels of literacy and numeracy in all students, identifying the weakest performers and targeting teaching resources on them to improve performance. This means exploring different teaching approaches, including teaching literacy and numeracy in the context of apprenticeship and technological education.

There are multiple skills shortages in the adult workforce in Israel, and the basic skills of the adult population are relatively weak, particularly for some social groups.

- To tackle this challenge, Israel may build basic skills education systematically into adult programmes, seeking to address the issue during military service, while also ensuring that effective programmes are in place for those groups that are exempt from military service.

- Basic skills are particularly low among Arab Israelis and Haredi Jews. These populations are also less likely to participate in the labour market and are more at risk of living in poverty. Since basic skills are closely related to the labour market outcomes and life chances addressing basic skills weaknesses in these populations should be a priority.

Policy arguments: The rationale for reform

These policy options are supported by five arguments. First, strong basic skills of literacy and numeracy are important for individual life chances and support the performance of the economy. Second, in Israel, an unusually high share of adults lack basic skills, particularly in some social groups. Third, measures to build basic skills more fully into vocational programmes would help to raise their status, and therefore the attractiveness of such programmes to young people. Fourth, in developing basic skills education, Israel can usefully build on some existing initiatives. Fifth, international evidence suggests some different tools to improve basic skills.

Policy argument 1. Strong basic skills are important for individual life chances and for collective outcomes

Adults with low skills have poor labour market outcomes

Weak basic skills are correlated with poor economic and social outcomes. Across countries, those with weak basic skills are more likely to be unemployed and outside the labour market (OECD, 2016). In Israel 30% of the low-skilled are not in the labour force and not studying compared to 10% among the highly skilled – a finding partly explained by the higher average age of the low-skilled. Two-thirds of the low-skilled in Israel are in
work, but they more often work in unskilled and low-paid jobs, and are less satisfied with their job than highly skilled workers. The association between skills and wages is particularly strong in Israel. On average across OECD countries that participated in the survey, the median hourly wage of salaried employees with high numeracy skills (Level 4 or 5) is around 60% higher than that of workers with low numeracy skills. The same is valid for literacy skills. In Israel, this difference is third highest among the participating countries (OECD, 2016: 126). In most countries including Israel people with low levels of skills have poorer health, trust others less and are less likely to engage in community life and democratic processes than high-skilled adults.

**Israel needs more skilled workers**

Many companies in Israel face shortages of skilled labour, and this is one of the main bottlenecks inhibiting growth and competitiveness (OECD, 2018). While skill needs in Israel were sometimes satisfied through large scale migration in the past, this may be less likely to occur in the future and Israel must therefore seek to upskill the current workforce and activate those outside the labour market.

**Training measures need to give adequate attention to literacy and numeracy**

Training measures should aim to improve the quality and quantity of workforce skills. Given that in Israel around one in three of those in work have low numeracy or literacy skills, (more than most other OECD countries) this task is challenging and needs to be pursued with full attention to basic skills requirements, as well as to specific occupational skills (see Figure 5.3). Stronger basic skills among adults would support the introduction of new technology, and would therefore provide a long-term incentive for firms to increase the stock of physical capital (buildings, machinery and equipment) per worker and to increase efficiency through technological innovation (Bank of Israel, n.d.).

**Figure 5.3. The Israeli workforce includes a large share of low-skilled**

Share of low-skilled among those in employment (16-65 year-olds)


StatLink  [http://dx.doi.org/10.1787/888933734968](http://dx.doi.org/10.1787/888933734968)
**Addressing low skills challenge could reduce inequalities**

A wide distribution of numeracy/literacy skills is often related to greater social inequality (van Damme, 2013). Israel scores high both on skills dispersion and economic inequality as measured with income distribution. Israel's Gini index is much higher than the OECD average, and poverty rates are also high, especially among disadvantaged groups. Around 50% of the Arab population and Haredi populations live in poverty (OECD, 2018).

**Policy argument 2. A large share of VET graduates lack basic skills**

42% of young technological graduates have low skills

42% of young (16-40 year-olds) Israeli graduates from upper-secondary VET, accounting mainly for graduates from technological education, are low-skilled, a higher proportion than for their counterparts from many other countries (see Box 2.1 to see how upper-secondary VET was defined in this analysis).

There are big variations in the performance of VET graduates

Among young upper-secondary VET graduates, 176 score points separate the highest and the lowest 5% performers in numeracy, far above the OECD average of 139 score points (see Figure 5.4). While The Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC) data does explain why basic skills are so widely distributed, this wide dispersion may indicate that while in Israel there are many very successful schools or programmes, whose students are top performers, some schools or programmes are failing to provide the most basic skills to their students. This finding is consistent with the findings on the labour market outcomes from technological education as presented in Chapter 2.

**Trade-off between quantity and quality**

Analysis of the Programme for International Student Assessment (PISA) data suggests that in many countries inclusion of previously excluded – and mostly disadvantaged – populations in the education system improved the average performance of the whole population (OECD, 2017). These findings suggest that action to improve the literacy and numeracy levels of the most disadvantaged are also likely to improve average literacy and numeracy levels. This provides a compelling argument for targeted measures to address poor basic skills in technological programmes.

**Policy argument 3. Building strong basic skills into vocational programmes would improve their status and attractiveness**

The aim should be to establish a virtuous circle, attracting able students to quality programmes

During the OECD mission to Israel, many employers expressed concern about the deteriorating image of VET schools. To combat this, the policy objective should be to establish high-quality and high-status vocational programmes at upper-secondary level. Achieving this will require the creation of a virtuous circle, in which investment in the quality of a programme leads to strengthened labour market outcomes, and attracts more high ability candidates into the programme. This flow of high ability students will in turn further improve the status of the programme, and its attractiveness to employers, who will come to see it not only as high-quality education and training, but also as a means of recruiting able young students. This will further improve the labour market outcomes from the programme.
Strengthening the basic skills element of vocational programmes should help to realise this virtuous circle

Kick-starting this virtuous circle is a challenge, but one practical step to this end would be to build into all upper-secondary vocational programmes increased attention to basic skills of numeracy and literacy. This will provide skills needed in jobs, but also provide a vital foundation for progression into further and higher education, removing the risk that the programmes might be seen as dead ends.

Figure 5.4. In Israel, VET upper-secondary graduates have a low average and a wide spread of numeracy performance

Numeracy performance among 16-40 year-old VET graduates (highest qualification). In Israel upper-secondary VET refers to technological education.

Note: England (United Kingdom), Flanders (Belgium), Italy, Northern Ireland, Sweden and the United States are excluded from analysis because in those countries it is impossible to identify VET graduates using the PIAAC database.


StatLink  http://dx.doi.org/10.1787/888933734987
Policy argument 4. Israel can build on existing programmes catering to low-skilled

In Israel youth apprenticeships cater to young people performing poorly in regular schools

Youth apprentices in VET schools under the Ministry of Labour, Welfare and Social Services (MLWSS) are more often boys, from low socio-economic backgrounds, non-Jews, coming from special education classes in middle school, older than the cohort age, and with lower grades than students from MoE technological schools. More than one in four youth apprentices will drop out by the 12th grade, comparing to one out of 20 in MoE schools (Ben Rabi et al., forthcoming). Catering to these multiply disadvantaged young people requires a personalised approach including measures to address basic skills weaknesses, diagnosed in initial screening. For example, adult candidates for the Starter programme have to pass a test evaluating their skills, and some basic skills training is offered before apprentices start practical training with the employer. Such programmes could be developed more systematically.

Basic skills gaps can be identified and remediated during military service in some populations

Since military service in Israel is mandatory for most Israeli citizens (except Arab citizens and to some extent the Haredi) it is an important context where weaknesses in basic skills might be initially identified, and subsequently remedied. Pursuing this more systematically would require a diagnostic test to be performed on entry to military service, as in several other countries (see for example www.jobtestprep.co.uk/army-aptitude-tests). Skills gaps identified in these tests could then be followed up, not least as they affect the capacity of individuals to perform in the military, as well as in subsequent civilian life. Military service plays an important role in developing the skills of young people, and is linked to successful programmes targeting young people at risk, and helping to integrate them into the military initially, but also later on into civilian life.

Those exempt from military service need alternative options for upskilling

For those, such as Arab and Haredi Jews, exempt from military service, other measures are required, recognising that basic skills weaknesses are in any case more common in these groups. Those who do not pursue military service miss out on the skills training available during service, financial support for training on their return to civilian life, and the social networking that is linked to military service. Independently of the issue of basic skills, this set of factors represents potential barriers to social and economic integration. Programmes designed to integrate these social groups into the labour market need to ensure that basic skills education is being addressed. In its previous reports (OECD, 2018a), with this concern in mind, recommended that Israel should consider making the civilian service mandatory where there is an exemption from military service.

Policy argument 5. Addressing basic skills challenge among Arab Israelis and Haredi Jews would improve social inclusion and support economic growth

Arab Israelis are less likely to be in employment

Only 53% of the working age (25-65) Arab Israelis are employed. Among low-skilled Arabs, only 45% of them are employed, compared to 73% of the low-skilled Israeli Jews. Highly skilled Arabs are less likely to work than low-skilled Jews (see Figure 5.5). In addition PIAAC data shows that two similar Israeli citizens, in terms of gender, education
level, family background and skills, but with different ethnic background (Arabs vs. Jews) receive significantly different wages, with Arabs being paid less.

Figure 5.5. Share of employed by skills and population group

25-65 year-olds


StatLink http://dx.doi.org/10.1787/888933735006

Israeli labour market is highly segregated

On the one hand, there is a booming high-tech industry that offers attractive working conditions with high and growing wages. On the other, low-skilled disadvantaged workers are employed in blue-collar low-paid jobs. The high-tech sector, which attracts mostly high-skilled workers, is facing growing labour shortages, undermining its growth and competitiveness. Despite strong demand, the high-tech sector share of overall employment has been stuck at about 12% for a decade, and the sector is said to lack more than 10 000 engineers (Ministry of Economy, 2016). Still, only 2% of Arab Israelis work in this sector.

Without intervention the share of low-skilled labour in Israel may increase

The wave of migration from the former Soviet Union that increased the working-age population by 15% 25 years ago is approaching retirement age. At the same time, the share of workers from communities with low skills is increasing. Currently, Arab Israelis and Haredi Jews represent one-third of the population, but in 2059 they are projected to represent a half (Central Bureau of Statistics, 2017), mainly because of the increase of Haredi Jews. Official estimates show that for young adults (20-24 year-olds) the share of Arab Israelis and Haredi Jews will increase from around one-third currently to 55% by 2060 (OECD, 2018a). Consequently, if there is no improvement in basic skills of Haredi Jews and Arab Israelis, the Israeli labour workforce will be less skilled in the future than it is now.
Skills gap starts early on

Already at the pre-primary level Arab children participate less often in education than their Hebrew-speaking peers (CBS). At the age of 15, students who speak Arabic at home have significantly lower reading and mathematics skills than students speaking Hebrew at home, according to PISA. While young Israelis who speak Arabic at home score only 397 points in mathematics, much below OECD average of 490 points, Hebrew-speaking students score as good as an average OECD student. If this problem is not properly addressed, this gap in performance is likely to persist and widen over life time. Many of the disadvantaged students enrol in technological education and apprenticeships. Targeted interventions identifying and addressing basic skills weaknesses should therefore be included systematically in these programmes.

Policy argument 6. International experience suggest some tools to tackle basic skills

There are multiple ways of teaching basic skills

Country experience shows that basic skills training can be delivered in a variety of ways, and in a range of contexts, including educational institutions, job centres, workplaces or community settings. Delivery can be on a full- or part-time basis and may involve e-learning and blended learning. Teachers may hold a specific or a general teaching qualification, but most often they are (trained) volunteers (Tett and St.Clair, 2010). A major challenge is the lack of (particularly positive) evaluation evidence on the impact of those interventions.

Early intervention is the best approach

Ideally, strong basic skills should be established early on in life. Learning and development of skills is a dynamic process, in which successive stages of learning depends on skills acquired previously, particularly foundation skills such as literacy and numeracy (Heckman, 2008). There is some evidence that advantages of early intervention are even more important among at-risk groups, such as minorities (Bodovski and Youn, 2011). Although early intervention is the most effective approach, some adults at all ages will need basic skills training.

In the context of education and training for adults, systematic screening for literacy and numeracy difficulties should be used to identify adults in need of support, implementing the screening tactfully so that it is not seen as a barrier for those seeking entry to VET courses – perhaps after a few days of the course, so that it is not seen as a selective test or barrier to entry (Kis, 2010). Identifying students with weak basic skills, and supporting them systematically, will avoid the risk of them starting other forms of vocational training that they will not be able to manage without stronger basic skills.

Sometimes basic skills are best integrated into vocational training

There is some evidence that integrative learning blending basic skills teaching into occupation training leads to positive outcomes. Box 5.1 describes the I-BEST model that was introduced in the United States and that provides basic skills in the context of learning vocational subjects.
Box 5.1. Innovative initiatives addressing poor basic skills in US colleges

I-BEST is an innovative blend of basic skills with vocational education and training. Often too few students in adult basic skills programs upgrade their skills by transferring to post-secondary education. The Integrated Basic Education and Skills Training (I-BEST) was developed to improve entry rates to post-secondary career and technical education (CTE) in response to this challenge. Around 2% of basic skills students participated in I-BEST in the 2006-2008 period (Wachen et al., 2010). An I-BEST program combines basic skills teaching and professional training. Occupational training yields college credits that contribute to a certificate degree. These CTE courses can only be provided in occupations in demand on the labour market and leading to well paid jobs (Wachen et al., 2010). Combining basic skills with CTE content is facilitated by the availability of both types of program at community and technical colleges (I-BEST programmes are available in every community and technical college in Washington State). Individuals must score below a certain threshold on an adult skill test and qualify for adult basic education to participate in an I-BEST program. I-BEST students tend to perform better than non-participants and are more likely to have a high school or equivalent qualification.

In the I-BEST program a teacher of basic skills and a teacher of professional-technical subject jointly instruct in the same classroom with at least a 50% overlap of instructional time (SBCTC, 2012). This increases the cost of provision and the state therefore funds I-BEST students at 1.75 times the normal per capita funding rate. From an individual point of view I-BEST programs are more expensive than adult basic education as students pay for the college-level portion of the I-BEST program. This might prevent some adults from participating as many I-BEST students are from low-income families and cannot afford tuition in college-level classes (Wachen et al., 2010). Students can receive financial support from federal (Pell grant) and state sources (State need Grant and opportunity Grant) but as reported by Wachen et al., (2010) many students interested in I-BEST do not qualify for this aid. Proving eligibility for the financial aid can sometimes be complicated and deter students from applying.

A few studies measuring the impact of I-BEST found that I-BEST students earn more credits and are more likely to complete a degree than a comparable group of basic skill students not participating in the program. Evidence on the link between participation in I-BEST and earnings is less conclusive, although this might be due to changing economic conditions and the US and Washington State economy entering the recession (Jenkins et al, 2010).

New technologies may also help to improve the basic skills of adults

In Israel, 87% of adults use a computer in everyday life (OECD, 2018b), around the average of OECD participating countries. Among Arab Israelis, use of computers in everyday life remains high (80%). Darling-Hammond, Zielezinski and Goldman (2014) reviewing more than 70 recent studies, found that technology coupled with a strategic policy approach could successfully be used to support underprivileged students, to help them strengthen their understanding, close skill gaps, and recoup prior experiences of failure. So, one option is to build e-learning of different types into vocational programmes, with a focus on literacy and numeracy. This requires experimentation and evaluation.
5. IMPROVING LITERACY AND NUMERACY IN VOCATIONAL EDUCATION AND TRAINING PROGRAMMES IN ISRAEL

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