

Preparing Teachers: an international review of the evidence on initial teacher education

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Abbreviations:

AEO NIS	Autonomous educational organisation ‘Nazarbayev Intellectual Schools’
CEECIS	Central and Eastern Europe and the Commonwealth of Independent States
CEFR	Common European Framework of Reference for Languages
CIE	Cambridge International Exams
CIS	Commonwealth of Independent States
CPD	Continuing Professional Development
CoE	Centre of Excellence of the AEO NIS
ITE	Initial teacher education
MoESRK	Ministry of Education and Science of the Republic of Kazakhstan
NU GSE	Nazarbayev University Graduate School of Education
OECD	Organisation for Economic Cooperation and Development
RPC	Republican Pedagogical Council
SCPES	State compulsory primary education standard
SPED	State Programme for Education Development of the Republic of Kazakhst 2020
UNICEF	United Nations children’s fund
UNT	Unified National Test
VET	Vocational educational training

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Executive Summary

Educators and policy makers realise, and research clearly demonstrates, that the most significant in-school factor affecting student achievement, in school success, and in the quality of a nation's educational system is the quality of teaching. Providing a quality teacher to the system is getting more difficult and complicated with the influence of an ever-changing global world with technological advancements and countries' aspiration to build a competitive knowledge society.

Enhancing the prestige of the teaching profession and quality of teaching is the national priority for the Government of the Republic of Kazakhstan. A number of innovations in the educational system have already been introduced and are underway in the secondary education system, including three level teacher professional development courses. However, there is a disjunction between the desired changes in pedagogy and the preparation and development of teachers.

The following issues remain in relation to teacher status, preparation and development in Kazakhstan:

- The lack of clear teacher professional standard and poor quality of teacher training;
- The teaching profession in Kazakhstan suffers from low status and prestige;
- Teacher training institutions recruit low quality candidates;
- No proper planning for demand and supply of teachers;
- Initial teacher education is not in line with the government's ambitious plans;
- Teachers lack specialist training in working with students with special educational needs;
- Mentoring and induction for newly qualified teachers are not clearly related to professional standards;
- Professional development is unfit for the changes taking place;
- The system of attestation is not linked to the changes taking place;
- Teachers' salaries and the 'stavka' system are fragmented, complex and do not support or strengthen a student-centred approach to teaching and learning.

Lessons can be learnt from high performing countries in order to build and develop a coherent system that links detailed professional standards that reflect a shared understanding of what is considered to be accomplished teaching for different subjects and different levels, with standards for the attestation and teacher education Programmes, for regular teaching evaluation and attestation process, and for the development of formal professional development plans.

Lessons learnt from around the world:

- Teachers must be seen as professionals who exercise judgement, not just technicians;
- Getting good teachers begins with recruiting talented individuals;
- Strong research based preparation in both content and pedagogy prepares teachers to work in challenging environments effectively and become life long learners themselves;
- Clinical practice is one of the hallmarks of the most successful systems of teacher preparation.

Introduction

This review is designed to inform and provide background material for a revision of initial teacher education (ITE) in Kazakhstan. The review was initiated in a meeting of the Republican Pedagogical Council of the Ministry of Education and Science of the Republic of Kazakhstan (MoESRK) chaired by the Minister A. Sarinzhypov in 16th October 2014.

It describes first, the current issues in ITE and the recent changes in secondary education system in Kazakhstan; and second, provides examples of good practices from other educational systems to inform changes in ITE in Kazakhstan.

The Republican Pedagogical Council (the RPC) was created in June 30, 2014 by the order of the MoESRK, with the aim of coordinating the efforts of the pedagogical institutions in revising and developing initial teacher preparation in Kazakhstan. The members of the RPC are representatives from the National Academy of Education after Altynsarin, Rectors of the pedagogical institutions, the Nazarbayev University Graduate School of Education (NU GSE), and the chairperson of the Autonomous educational organisation ‘Nazarbayev Intellectual Schools’ (the AEO NIS).

The primary concern of the review is to lay out the issues, which concerned parties revising initial teacher education need to address within the Kazakhstani context. This document shall also lay out what are the general developments in ITE internationally. In this review we tried to summarise some of the current trends in the area of teacher education and to provide some examples of successful practices based on the high-performing countries of the world.

It should be noted, that there are some issues on which there is at least some consensus internationally, but there are many others on which no clear consensus exists. Like the education system in general, the kind of ITE owes a great deal to a country’s history and culture, and there is always a judgement to be made between alternatives – a judgement informed by that country’s own values and priorities and by an understanding of what is appropriate and possible in that context, including commitment and the financial and professional capital available.

It is not entirely clear about the scope of the work to be carried out by the RPC at the time of writing the review. It was agreed that the review should be presented at the next meeting of the RPC for them to inform the priorities for revising ITE in Kazakhstan.

Teacher Status and ITE in Kazakhstan – Roadmap project

Educators and policy makers realise, and research clearly demonstrates, that the most significant in-school factor affecting student achievement, in school success, and in the quality of a nation's educational system is the quality of teaching.¹

Many of the issues related to teacher effectiveness set out above have been identified by those working with and within Kazakhstan.² Currently, several actions are being undertaken, such as: a reform led by the MES working with NU to make changes in the pedagogical institutes' Programmes; a national system of professional development including the Centres of Excellence Programme; ORLEU has become one organisation and has a national system of Continuing Professional Development (CPD); developments in teacher pay linked to the Centres of Excellence Programme; and developments in NIS in the systems of attestation, pay and career progression.

According to the Diagnostic report 'Development of strategic directions for education reform in Kazakhstan for 2015-2020' (Roadmap Diagnostic Report 2013 prepared by the roadmap team the analysis of teacher characteristics and quality in Kazakhstan show that:

- Over 50% of teachers have between 9 and 20 years of experience with the majority having over 20 years of experience;
- The majority have qualifications in the first and second category;
- The majority are over 30 years of age;
- 87.9% have completed higher education (no data on 'zaochnoe' study');
- The majority are female (80.2%).

The Roadmap Diagnostic Report and OECD 2014 review of secondary education in Kazakhstan identified following issues related to teacher professional status, teacher preparation and professional development in Kazakhstan:

Issue #1: Lack of clear teacher professional standard

There is a need for clear standards that fit a vision of the teacher, of the school and of professional learning. In high-performing education systems policy on teacher education is a national priority. Teacher education increasingly relies on research knowledge on the one hand and focusing on preparing teachers to use and do research on the other. Pre service education expands conventional teacher competences so that teachers are able to use educational research as part of their work in school. They diagnose their own teaching and learning by using educational research knowledge and methodologies to find the best methods of work, and understand their professional development through critically reflecting on their own thinking and behaviour. Many teacher education Programmes are having a more systematic focus on linking theory and practice during the initial preparation of teachers. In some countries, practical learning is also becoming an integral part of Masters degree studies

¹ Darling-Hammond L, Rothman R (2011) Teacher and leader effectiveness in high-performing education systems, Washington, DC: Alliance for Excellent Education and Stanford, CA: Stanford Centre for Opportunity Policy in Education; Florian L (2012), Preparing teachers to work in inclusive classrooms: key lessons for the professional development of teacher educators from Scotland's inclusive practice project.

² Examples include speeches by the Minister of Education and Science in Astana on May 24, 2011; on 31 January, 2013; on 26 March, 2013 and the UNESCO report.

for initial teacher education. There are very close connections between schools and training organizations.³

Recent reviews of education in Kazakhstan have expressed concern about the quality of pre-service teachers' courses in pedagogical universities⁴. This, together with teachers' pay and conditions (teachers are paid by contact hour) has a direct impact on the quality of the entire education system. In Kazakhstan there is no requirement for teachers to earn a Master's degree. Primary teachers can graduate from VET. Master's degree and Ph.D. students are perceived as overqualified specialists for school teaching, so it is likely that there is little motivation to earn a part-time Master's or Ph.D.

Although there exists standards for higher education institutions in Kazakhstan, as well as qualification requirements and general standards for teacher attestation, there is no integrated system linking these standards to the different components of the education system such as teacher initial training, teacher appraisal and evaluation system, teacher continuing development and certifications for professional recognition of higher levels of teacher competences.⁵

Issue #2: Prestige of the teaching profession, occupational social standing and teacher's role in the system

An indication of the status of the teaching profession is the prestige and occupational standing enjoyed by teachers. Measuring the prestige and occupational standing of teachers is no straightforward task. In Kazakhstan a few teachers enjoy high social status among their peer group and within the community.

According to the State Programme for Education Development 2011-2020 (SPED) a number of initiatives are pursued or planned to help enhance the prestige of teachers in Kazakhstan. These included 'Teacher of the Year' and other competitions, joint projects with mass media and forums of teacher-innovations⁶.

Improving the status of the teaching profession involves treating teachers as professionals. That includes giving them professional discretion and independence in how they shape student learning in their classroom and including them in educational decision at the school and system level. Teacher involvement in school decision-making and school leadership is important to promote the professionalization of teaching and to increase the status of the profession. Another level at which teacher input should occur is at the system level, the level where educational policies are formulated and developed⁷.

A certain level of involvement by teachers is apparent in schools in Kazakhstan, especially in schools for gifted children, where teachers appear to have an important role to play in the development of school policy.⁸ The OECD team reported meeting teachers who were responsible for developing curriculum material (including textbooks) and the implementation of innovative pedagogical practices throughout the school. However, whether these teachers were representative of the average experience of teachers throughout the system remains unclear, and there may indeed be room for improvement in this area.

³ McLaughlin C. (2014), Report on Teacher Professional Standards.

⁴ State Programme for Education Development of the Republic of Kazakhstan for 2011-2020

⁵ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.171.

⁶ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.187.

⁷ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.179.

⁸ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.179

Issue #3: Recruitment and selection of low quality candidates

There are serious issues regarding the recruitment and selection of high quality candidates for teaching in Kazakhstan.

According to one university⁹, a leading secondary teacher training provider, the quality of teacher training students tended to be lower than of students on other Programmes, owing to the profession's low status and appeal; but teacher training was a popular choice for people with UNT scores too low for other courses, given the high number of training grants available. This university's trainees generally completed their courses, thanks to the grants but many failed to go into the profession afterwards.

The average teacher salary is KZT 80,386, which is lower than the average Kazakhstan salary of KZT 110 000. The starting teacher salary is KZT 42 000, which is only 30% of GDP per capita, while in OECD countries the starting teacher salary is 95% of GDP per capita.

As a result, the teaching profession is seen as low status and unattractive to high quality graduates. Also contributing to the problem is the low standard of admissions to pedagogical universities, where students who have an average UNT score of 70 are accepted by the state national university and a score of 50 by the state pedagogical institutions.

Issue #4: No proper planning for demand and supply of teachers

There are some significant challenges in assessing and planning for teacher supply. There is an excess of teachers as there is no clear mechanism to identify the real demand for teachers. Only 65% of all teacher graduates found employment in 2012. Without a way to track how many of these graduates were actually employed as teachers, the majority may have found jobs in other industries.

Eighty-six of the 133 higher education institutions provide teacher qualifications. There is no data on the number of applications per available place on education training Programmes¹⁰.

Issue #5: Initial teacher education is not in line with the government's ambitious plans

All schools are expected to teach the Kazakh, Russian and English languages. There are 31 schools for gifted and talented children participating in a trilingual education project. This number is expected to increase to 700 by 2020. There are also 154 language centres throughout the country that provide English, Kazakh and Russian courses, as well as KAZTEST examinations.

There is a disjunction between the government's ambitious plans for expanding trilingual schools and the capacity of teacher training institutions to train future teachers who could achieve a C1 level (CEFR) in a foreign language and at the same time support students in learning the Kazakh and Russian-language terminology in the subjects that they are teaching through the foreign language. Existing trilingual schools are having difficulty finding sufficient numbers of teachers to teach through English. There are cases where teachers from

⁹ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.166.

¹⁰ OECD (2014), Reviews of National Policies of Education: Secondary Education in Kazakhstan, p.166.

one type of trilingual school are being drawn away to teach in another type of trilingual school.

Issue #6: Teachers lack special training in working with students with special educational needs

Around 70,000 children with special learning needs and/or disabilities are attending regular schools, partly because there is an insufficient number of specialised educational organisations; specialised schools are remote from places of residence; and parents prefer to educate their children in the system of general education. In this situation, however, an estimated 85% of these students cannot grasp the material as it is presented to them in the classroom, and cannot get help from teachers as they lack special training in working with students with special educational needs (MoESRK, 2010a).

Issue #7: Mentoring and induction for newly qualified teachers

The mentoring Programmes as described in the Ministry documents are designed to provide new teachers with the necessary support required to face the challenge of this new profession successfully. However, there is no information available about the extent to which this Programme is implemented in the different regions of the country, in both rural and urban areas, or in all subjects and grades. It is unclear whether the supply of mentors is adequate to meet the needs of new teachers throughout the country, especially given the shortage of highly qualified teachers in rural area. Moreover, the mentoring Programme is not clearly related to professional standards and needs adjusting.

Issue #8: Professional development is unfit for purpose of changes taking place

The current system of professional development system of a course every three to five years seems unfit for the changes taking place, and it is not based on a real needs assessment.

An ambitious and empirically based reform for teacher continuous development is currently underway which aims to provide a new structure for multilevel training Programmes development in co-operation with international partners (mainly the Faculty of Education, Cambridge University) and with the Centre of Excellence (CoE) of the AEO NIS. However, the continuous professional development system should not be engaged in constant compensation. The growing gap between the desired innovation and the preparation and support of teachers is a priority problem that needs to be addressed. A UNICEF study (UNICEF, 2011b) of the region found that the disparity between the stagnant and the progressive has led to an innovation gap between pre-service education and in-service training over the last several years'.

Issues #9: The system of attestation is not linked to changes taking place

The current system of attestation does not promote collaborative learning and the development of practice needed for change. Clear standards are needed that fit a distinct vision of the teacher, the school and professional learning to feed into policy. Appraisal systems need to be in place to examine teachers' performance and this needs to be more complex than a payment by results system with very narrow measures of performance.

The CoE three level in-service Programme and the teacher internship Programme offered by the Centre for International Programmes through Bolashak requirements are not aligned to the attestation system.

Issue #10: Teachers salary 'stavka' system is fragmented, complex and doesn't support to strengthen student-centred approach to teaching and learning

The teacher salary structure in the *stavka* system is fragmented, complex and difficult to administer. The base salary is defined in terms of the statutory teaching load (*stavka*), which is equal to 18 contact hours per week. All other activities, such as grading student notebooks, managing a laboratory, etc. are regulated and compensated (or not) separately (MES, 2009). Many initiatives that attempt to strengthen student-centred teaching methods do not sufficiently consider the limitations of the *stavka* system in terms of additional pedagogical work. Student-centred teaching requires additional hours for out of contact work, such as additional lesson planning and student evaluation for which teachers are not compensated (UNICEF, 2011a). The current *stavka* does not fully recognise the role teachers are expected to assume to support the implementation of educational reforms and it may act as a disincentive for teachers to undertake what may be seen as extra work for no pay. It also encourages teachers to over teach in order to maximise their salary.

The *stavka* system has also been criticised for being fragmented and non-transparent. To some extent, this is due to the fact that school principals assign additional teaching hours or deductions from salary supplements at will. Recently, there have been increases in teachers' average salary, however, salaries still remains low compared with other sector professions. On average teachers are paid KZT 80 386 (USD 535) per month, which is below the average Kazakhstan salary of KZT 109 970 (USD 733).

The *stavka* system applies to those in pedagogic institutes too.

1. The changes in secondary education in Kazakhstan

One of the stimuli for the review of ITE is that the new State Compulsory Primary Education Standard (SCPES), which is based on the Nazarbayev Intellectual Schools experience, is to be piloted for grade one in 30 primary schools in 2015 prior to its dissemination to all comprehensive schools in Kazakhstan in 2016. According to the action plan of the MoESRK, transitions to the new SCPES and State Compulsory Secondary Education Standard (SCSES) - here forth referred as the SCS (State Compulsory Standard) - from grade one to grade twelve will be gradual and stage by stage process. The new SCS is based on a new paradigm of teaching and learning, where teachers are expected to develop student's abilities and capacities that are essential for both the achievements of higher standards of education, including those measured by PISA, and master 21st century skills such as: creativity and innovation, critical thinking, problem solving, decision-making, communication (including multilingualism), collaboration, information, media literacy, citizenship (local and global), social responsibility, cultural awareness, life and career etc.

Existing teachers in the system will be provided with professional development courses to work with the new SCS. A major three level in-service training Programme developed and delivered by Centre of Excellence (CoE) of the AEO NIS along with Joint stock company 'Orleu' continues to promote and equip existing teachers with more versatile pedagogies: more active and interactive approaches in learning; more student centred learning that takes into account individual difference and diversities; critical thinking, the use of assessment to inform learning the use of ICT etc.

Meantime, pedagogical institutes are asked to analyse the changes in the content of the new SCS with the view to ensuring that their own courses reflect the content of the new SCS, subject Programmes and new approaches to learning and teaching with an aim to equip next generation teachers with required knowledge and skills to implement the new SCS. They are also mandated to train the teacher educators according to the three level professional courses provided by the CoE of the AEO NIS and incorporate the course content and approaches in ITE.

However, as reported in the 2014 Diagnostic Report prepared by the Roadmap team¹¹, there is a huge disjunction between the desired changes in pedagogy and schools and the preparation and development of teachers in Kazakhstan. Thus, initial teacher education *needs to be reformed radically, not merely by adjusting curriculum*. The change in initial teacher education needs to be a sympathetic and profound reform. There needs to be a systemic approach to integrate the different elements of teacher preparation and development. This requires co-ordination and integration of following elements that need to be linked:

- Clear teacher professional standard;
- Status of a teaching profession;
- The recruitment of qualified individuals into the profession;
- Their preparation and induction;
- Their contentious professional learning and development;
- Their evaluation and career development, and their retention.

¹¹ Ayubayeva N, Bridges D, Drummond MJ, Fimyar O, Kishkentayeva M, Kulakhmetova A, McLaughlin C, Mehisto P, Orazbayev S, and Shinkarenko V (2013), Development of strategic directions for education reforms in Kazakhstan for 2015-2020: final report of the early years and secondary school working group. Astana: Nazarbayev University.

2. Challenges we face

Many of the challenges related to teacher preparation and development that are faced by Kazakhstan are not unique to the country.

Education, the traditionally local social institution, faces a number of significant challenges. The main one is that there is a shift from education policy linked to a bounded national economy, to education conceived in relation to internationalising national economies. This globalisation process involves increased mobility of people, resources and ideas, and technological advancements that make ideas travel faster than ever. Additionally, education systems are compared globally now and ranked, (whether one approves of these or not), and these rankings are highly influential, especially with policy makers. So the local judgements mirror the global ones. To prepare the next generations to live in the global society the education system has to embrace the challenge and to change, although not by merely adopting the practices of the country leading the table. It is important that we learn from each other's practices while maintaining a national vision. In the globalised world the economy, social health and wellbeing, as well as social mobility, are all shaped by global forces. Countries have to aim to have a highly educated citizenry in order to keep up with global change and trends. Schools everywhere in the world must answer this challenge by re-evaluating their curriculum and pedagogy to equip their students with the skills, knowledge, and abilities, otherwise called 21st century skills, that are required by both local and global companies, But the question is how to do that?

There are two general points of views regarding responsive trends. In one camp, educators, researchers and policymakers believe that the next step of the reform is to focus on curriculum standardisation, high-stakes testing, and an emphasis on science, technology, engineering, and maths. However, this belief has been seriously challenged by others who think that schools should focus on developing creativity, a diversity of talents, critical-thinking skills, entrepreneurship, right-brain-directed skills, global competences, and a host of other abilities and knowledge not included in the current curriculum and testing.¹² Therefore, in the 'knowledge society', there are high expectations for teacher and student performance and there is a strong emphasis on ensuring that all students develop 21st century skills.

The first standardisation point of view is mostly prompted and supported by international comparative studies such as TIMSS and PISA. TIMSS (Trends in International Mathematics and Science Study) assesses fourth and eighth grade student achievements in maths and science every four years. Although TIMSS's goal is to 'improve the teaching of maths and science,' PISA (Programme for International Student Assessment) has a much bolder claim. According to OECD, which administers PISA, this test aims to evaluate if students are well prepared for future challenges. Can students analyse, reason and communicate effectively? Do they have the capacity to continue learning throughout life? Every three years, PISA assesses how far 15-year old students have acquired some of the knowledge and skills essential for full participation in society. Results of both Programmes have been widely used to judge a nation's quality of education and its future citizens' ability to compete in the global market. A recent study commissioned by PISA even tries to make a direct link between PISA

¹² Zhao, Y (2010), Preparing Globally Competent Teachers: A New Imperative for Teacher Education, *Journal of Teacher Education* 61:422

scores and national economic performance.¹³ PISA and its database has also been criticised for the way in which it collects data¹⁴.

Today's schools are challenged dealing with different kinds of internal diversity, such as ethnicity, linguistic, religion, culture, social class, race, gender, inclusion and special rights, partially created by demographic changes and globalisation process. These factors vary from country to country. For example, many countries now expect to prepare all teachers – not just specialist teachers – for inclusive education. Moreover, many European countries are facing many issues of inclusion and are extending their definition of inclusion to include a much broader range of learners who are vulnerable to the forces of educational and social exclusion than has previously been permitted by the term special educational needs¹⁵. Therefore, teacher educators need to prepare a teaching force capable of producing equitable learning opportunities and outcomes for diverse students.

Globalisation processes put additional pressure on teachers who have to prepare students for an ever-changing global world by equipping them with 21st century skills and helping them to become life-long learners. While there is no single widely-accepted definition of '21st Century skills', for the sake of constructive discussion in this context, here we provide some of the 21st century skills repeatedly reported in different policy documents. These are: creativity and innovation, critical thinking, problem solving, decision-making, communication (including multilingualism), collaboration, information literacy (including research on sources, evidence, biases, etc.), media literacy, application of numeracy, learning how to learn, metacognition, ICT literacy, citizenship (local and global), flexibility and adaptability, personal and social responsibility (including cultural awareness and competence), life and career.

To prepare teachers to teach in the context of globalization is the job of teacher education Programmes, which, like the schools they serve, have been traditionally oriented to their local contexts. And of course, none of this will be successful without broader reforms in how teachers are recruited, selected, and trained.

The following section summarises successful examples of the reform in the area of ITE that happened in different countries of the world. However, it is necessary to underscore that there are no magic bullets, or one key component (or even a few) that will influence or change the whole system. However, as Michael Barber states the countries with successful education Programmes tend to offer teachers higher status in society and have a 'culture' of education. The Pearson's study 'The Learning Curve' (2012) notes that while funding is an important factor in strong education systems, cultures supportive of learning are even more critical – as evidenced by the highly ranked Asian countries (including South Korea and Singapore) where education is highly valued and parents have grand expectation. While Finland and South Korea differ greatly in methods of teaching and learning, they hold the top spots because of a shared social belief in the importance of education and its 'underlying moral purpose.'¹⁶

¹³ OECD (2010), High cost of low educational performance: the long-run economic impact of improving PISA outcomes, at <http://all4ed.org/wp-content/uploads/2010/08/OECDReport011910.pdf>

¹⁴ Prais S.J (2003), Cautions on OECD's recent educational survey (PISA), *Oxford Review of Education*, 29 (2), pp.139-163.

¹⁵ Florian L. (2013), Preparing teachers to work in inclusive classrooms: key lessons for the professional development of teacher educators from Scotland's inclusive practice project, p.275.

¹⁶ Coughlan S (2012), UK education sixth in global ranking at <http://www.bbc.com/news/education->

Change in the culture cannot come easily. Any cultural change takes determination, time, and effort. In any country, the reformers will stress that existing political environment of education and teacher education inhibits the potential for change. Finland is one of the often-quoted examples of successful education system, however, this country was among the last in Europe to establish compulsory education in 1921. The comprehensive school system was developed only in the 1970s simultaneously with the *Teacher Education Reform*, which was put into practice in 1973-9. But during this period of time the approaches to the training of primary school teachers has changed, and the responsibility for their training was granted to the newly established university faculties of education. In 1979 training of primary school teachers was raised to the Master's degree level, which raised the role of the educational studies in teacher training. It is often mentioned that the reform of the 1970s was executed in totalitarian way, but it was very systematic.¹⁷

The imperative to change in teacher education is clear and immediate, and it requires thorough systemic change at all levels of education, the re-consideration of the role of the learner and the teacher in the system, and the re-evaluation of the ideas behind the education per se.

4. Learning lessons

McKinsey's 2010 report, *How the World's Most Improved School Systems Keep Getting Better*, argues that effectiveness of the education reform depends on the current state of the school system. Each country should decide for itself where it belongs, but in McKinsey's view, systems currently marked by 'fair' levels of performance should focus on teacher accountability, while 'good' systems are likely to benefit more from enhancing the status of the teaching profession.¹⁸

4.1. Quality of teaching: attracting the best people to the profession

A study drawing on data covering about 2.5 million US children found that, after correcting for other factors, pupils assigned to better teachers 'are more likely to attend college, attend higher-ranked colleges, earn higher salaries, live in higher [socio-economic status] neighbourhoods, and save more for retirement. They are also less likely to have children as teenagers.'¹⁹

Teacher quality, notes William Ratteree, a former education sector specialist at the International Labour Organization – 'is a mix of factors which are difficult to pin down.'²⁰

Finland, Ontario, and Singapore have been able to attract and retain highly effective teachers in part because teaching is an attractive profession that many individuals want to join and stay in. Unlike many other countries, teaching in these three jurisdictions is attractive to academically talented youth, who stay in the profession rather than leave to find more lucrative jobs. In Finland, for example, teaching was the top-rated job by college students surveyed in 2008.²¹ In some respects, this attractiveness is a cultural phenomenon. Leaders in these jurisdictions have frequently expressed their belief that teachers are vital, and this has helped raise the status of the profession. In 1966, when Singapore had just achieved its independence, then Minister of Education, Ong Pang Boon, declared that 'the future of every one of us in Singapore is to a large extent determined by what our teachers do in the classroom.'²² Forty years later, Singapore's prime minister, Lee Hsien Loong, stressed the importance of teaching once again: 'Just as a country is as good as its people, so its citizens are only as good as their teachers.'²³

¹⁸ Mourshed M, Chijoke C, Barber M. (2010), *How the world's most improved school systems keep getting better*, McKinsey & Company, p. 7

¹⁹ Chetty R, Friedman JN, Rockoff JE (2011), *The long-term impacts of teachers: teacher value-added and student outcomes in adulthood*, National Bureau of Economic Research Working Paper 17699, December at <http://www.nber.org/papers/w17699>.

²⁰ Economist Intelligence Unit (2012), *Learning curve: lessons in country performance in education*, p. 22.

²¹ In Darling-Hammond L. and Rothman R, Eds. (2011), *Teacher and leader effectiveness in high-performing education systems*, Washington, DC: Alliance for Excellent Education and Stanford, CA: Stanford Centre for Opportunity Policy in Education.

²² Darling-Hammond, L (2013), *Developing and sustaining a high-quality teacher force*, Asia Society, p. 8

²³ Darling-Hammond, L (2013), *Developing and sustaining a high-quality teacher force*, Asia Society, p. 8

Getting good teachers begins with recruiting talented individuals. Finland, South Korea and Singapore – examples of education success and the top countries in McKinsey Index – obtain their annual teacher intake from the top 5-10% of graduating students:

- Finish teacher education Programmes choose one out of every ten individuals who apply to become primary school teachers or subject teachers;
- Singapore has traditionally chosen participants from the top third of high school classes (and this country is now moving rapidly toward graduate-level preparation);
- In Ontario, where graduate-level preparation is the norm, the process is also highly competitive.

Table 1. Comparison of policies aimed at attracting and retaining teachers²⁴

Policies to attract/retain top teachers	Singapore	Finland	South Korea
Selective admission to teacher training			
Government paid teacher training			
Government regulates supply of teachers to match demand			
Professional working environment			
Competitive compensation			
Cultural respect accorded to teaching			
Teaching considered as a career			
Robust opportunities for career advancement			
Performance pay for teachers			

This selection process for entering teacher education programmes could be considered as a signal of prestige. Finland, Ontario, and Singapore not only recruit able candidates, they screen them carefully to ensure that they have all the attributes that make teachers effective, e.g. commitment to the profession, evidence of the capacity to work well with children, and academic ability. For example, in Finland, during the second stage of selection process, applicants have to pass both a written exam on pedagogy and take part in a clinical activity that replicates a school situation and demonstrates social interaction and communication skills as well as teaching attitudes and behaviours.²⁵ After that top candidates are interviewed and asked to explain why they decided to become teachers.²⁶

²⁴ Auguste, B., Kihn, P., Miller M. (2010), Closing the talent gap. Attracting and retaining top-third graduates to careers in teaching: an international and market research-based perspective, September, p. 23

²⁵ Alliance for Excellent Education (2011), Teacher and school leader effectiveness: lessons learned from high-performing systems, March, p. 4

²⁶ Sahlberg, P. (2010), The secret of Finland's success: educating teachers, SCOPE Research Brief, September, p. 2

4.2. Pre-service training: right from the start

The training of the selected students has to be appropriate to the conditions in which they will work. This varies by country. As mentioned earlier, the Finnish system, for example, benefits from teachers having graduate degrees.²⁷ On the other hand, Nahas Angula, Prime Minister of Namibia, points out that his country's policy of requiring all teachers to have an undergraduate degree may be driving up the cost of education when other training would suffice for primary grades.²⁸ This view contains the assumption that primary teaching requires less subject knowledge and this has been critiqued by researchers. The best systems have high quality primary teachers. Therefore, the credentials teachers should have before they enter the labour market should be decided by the leaders in the area of education.

Strong research based preparation in content and pedagogy

In the high-performing countries, once selected, applicants for teaching go through carefully designed and well-supported preparation Programmes. In Finland, teachers must have at least a two-year master's degree in education gained at one of eight universities that are known internationally for their rigorous, research-based Programmes. This degree follows undergraduate training in a major subject, plus two minor subjects. Teachers both study research and become researchers: before the graduation they complete a master's thesis on a pedagogical problem.

Table 2. Structure of pedagogical studies for teachers at the University of Helsinki (60 credits)²⁹

Bachelor's level (25 ECTS credits)	Master's level (35 credits)
<p>1st period (18 credits):</p> <ul style="list-style-type: none"> • Development psychology and learning (4) • Special education (4) • Introduction to subject didactics (10) <p>2nd period (7+6 credits)</p> <ul style="list-style-type: none"> • Basic teaching practice in Teacher Training School (7) <p><i>Master's level studies in 2nd period:</i></p> <p>Teacher as a researcher – seminar Part 1: Research and methods (6)</p>	<p>3rd period (17 credits)</p> <ul style="list-style-type: none"> • Social, historical and philosophical foundation of education (5) • Evaluation and development of teaching (7) • Applied practice (5) <p>4th period (12 credits)</p> <ul style="list-style-type: none"> • Teacher as a researcher – seminar Part 2: Pedagogical thesis (4) • Master's level practice in Teacher Training School (8)

²⁷ However, it should be pointed out that this shift towards graduate education happened almost 35 years ago. On brief overview of history of education in Finland and teacher education, see Sahlberg, P. (2012), Finland: a non-competitive education for a competitive economy in Strong performers and successful reformers in education: lessons from PISA for Japan, OECD, pp. 94-96, 98

²⁸ Economist Intelligence Unit (2012), Learning curve: lessons in country performance in education, p. 22

²⁹ Structure of pedagogical studies for teachers, University of Helsinki, at <http://www.helsinki.fi/teachereducation/education/subjectteacher/structure%20of%20pedagogical%20studies%20for%20teachers%202008.pdf>

It took almost ten years for the Finnish leaders in the field of education to make their graduate Programme more research-oriented, and to focus on teaching for higher-order skills like problem solving and critical thinking. University courses put an emphasis on cooperative and problem-based learning, reflective practice, and computer-supported education, effective, innovative university teaching practice. Future teachers learn how to create challenging curriculum and how to develop and evaluate local performance assessments that engage students in research and inquiry on a regular basis. Teacher training emphasizes learning how to teach students who learn in different ways – especially including those with special needs. The egalitarian Finns reasoned that if teachers know how to work with most challenging students, they will be able to teach all students more effectively.³⁰

Table 3. Teacher education degree

	Undergraduate	Graduate
Finland	Bachelor’s Degree	Master’s Degree
England	Bachelor in Education (B.Ed.) Bachelor of Arts with Qualified Teaching status (B.A. - QTS)	Post-graduate Certificate of Education (PGCE)
Ontario	Bachelor’s Degree	1-year teacher preparation (Faculty of education)
Singapore ³¹	Bachelor’s Degree	Post –graduate Diploma in Education (Secondary)

In the UK, a trainee teacher would normally graduate from the university with a bachelor degree, and then move to a PGCE (Post-graduate Certificate in Education). The PGCE could be received through both school-led and university-led training courses, and it is a one-year course of academic study that results in a professional academic qualification and also develops the trainee’s understanding of the theory of education and teaching methods. Schools in the United Kingdom have started taking more control of teacher training, and they provide learners with practical, hands-on teacher training delivered by experienced, practising teachers based in their own school or at a school in their network.³²

Teachers in Ontario, Canada go through rigorous preparation at one of thirteen universities accredited by the Ontario College of Education. These Programmes generally consist of three or four years of undergraduate study and a year of teacher preparation at a faculty of education.

In Singapore, all pre-service preparation occurs in the National Institute of Education (NIE), affiliated with Nanyang Technological University. As in Finland, there is a focus on teaching for problem-based and inquiry learning, on developing collaboration, and on addressing a range of learning styles in the classroom. Singapore changed its teacher education Programmes in 2001 to increase teachers’ pedagogical knowledge and skills as well as their content knowledge. The 4-year Programme is fully financially supported and students receive a salary for attending it. Singapore has started to move towards

³⁰ Darling-Hammond, L. (2010), What we can learn from Finland’s successful school reform, NEA Today Magazine, November, at <http://www.nea.org/home/40991.htm>

³¹ In Singapore teacher education is studied at the graduate level

³² UK Department of Education, Get into Teaching at <http://www.education.gov.uk/get-into-teaching/teacher-training-options/school-based-training>

graduate-level training of teachers, with about two-thirds now completing a one-year master's degree Programme following the undergraduate subject specialism, and one-third completing a four-year undergraduate Programme. All teachers, including those who will teach in elementary schools, must demonstrate deep mastery of at least one knowledge area (plus study other subjects they will teach), and clinical training has been expanded.³³

Importance of clinical practice

In high performing countries trainee teachers spend a substantial amount of time in *clinical practice* in schools that are often partnered with or run by a university. According to the report on Northern Ireland, 'the term 'clinical practice' involves the provision of opportunities for student teachers to engage with other forms of knowledge – from research, from theory, from practice in other places and contexts – and to use that knowledge and the insights it provides to challenge, to question, to reflect on, and to improve their own teaching.'³⁴

Clinical practice is one of the hallmarks of the most successful systems. And Finland is one of the most quoted examples of success in this regard. In Finland, students spend almost 1 year (or 36 weeks) involved in clinical practice, and senior teachers who are helping beginners are trained to mentor and to ensure that they can apply the best practices and help their younger peers. A new teacher residency Programme at the Old Dominion University in the USA puts a strong emphasis on clinical practice (internship in one of public schools four days a week for nine months). One of the outcomes of this Programme is 100% retention rate: the graduates who become teachers are staying in the profession and teaching at public schools after graduating from this Programme,³⁵ although other countries with clinical practice have less successful retention rates.

In Korea, students are required to teach full-time for six weeks toward the end of their teacher education Programme. In Singapore, prospective teachers are required to participate in compulsory practicum (nine weeks) and school experience (one week). In England, prospective teachers are required to teach in school for at least 24 weeks.

It should be noted that one of the key elements in these Programmes are *partnerships* established between 'model' schools where young teachers can apply their skills and universities, where these trainees are taught. However, the idea of partnership goes much deeper. In the USA, school teams including both university and school educators work on curriculum development, school reform, and action research; while university faculty is typically involved in teaching courses and organising professional development at the school site and in teaching children; and school-based faculty often

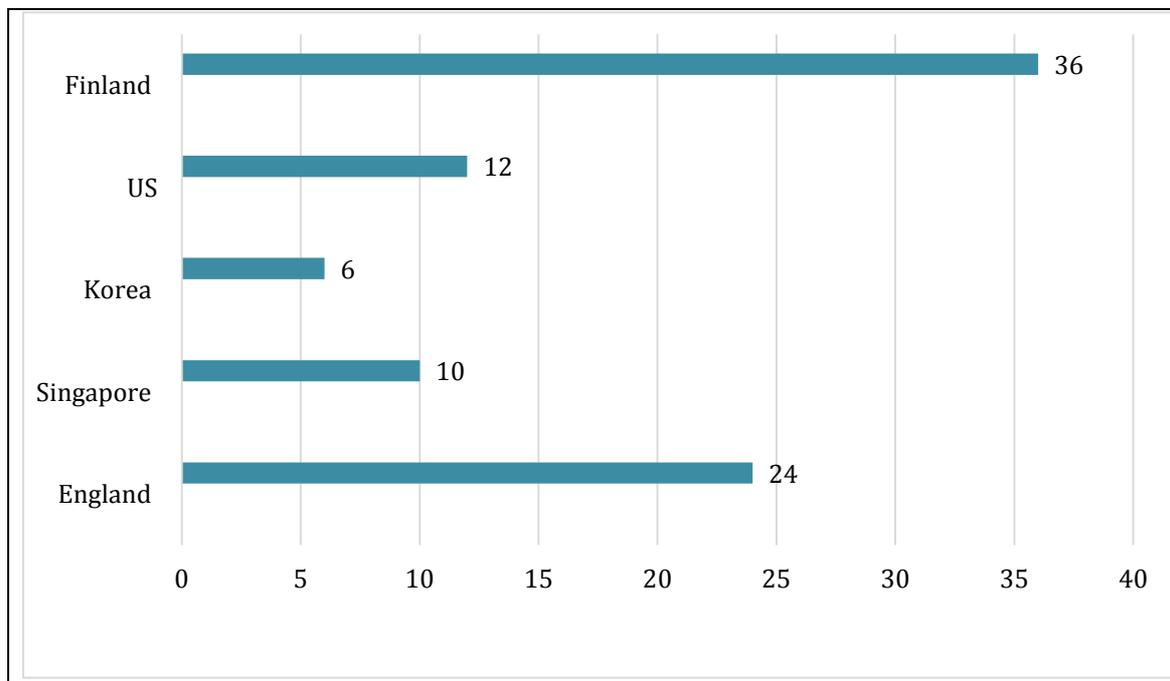
³³ Alliance for Excellent Education (2011), *Teacher and school leader effectiveness: lessons learned from high-performing systems*, March, p. 4

³⁴ Department for Employment and Learning (DELNI) (2014), *Aspiring to Excellence*. Final report of the international review panel on the structure of initial teacher education in Northern Ireland, June, p.11

³⁵ An urban teacher residency that closes the teacher quality gap, Presentation at the ICERI conference, Seville, November 2014. For more detailed information, please see Old Dominion University - Teacher Immersion Residency (ODU-TIR) <http://ww2.education.odu.edu/education/tir/index.shtml>

teach in the teacher education Programme. Most classrooms are sites for clinical practice and trainee teaching placements.³⁶

Figure 1. Duration of clinical practice (in weeks)



Sometimes these partnerships choose a certain focus, and they worked, for example, exclusively on an equity agenda (e.g. to help new schools provide more equitable access to high-quality curriculum for diverse learners) or efforts of school and university teams are focused on inadequate or fragmented curriculum and poor teaching, etc. In these partnerships, student teachers or interns are encouraged to participate in all aspects of school life, including special education, support services for students, parent meetings, home visits, community involvement, faculty discussions and projects aimed at on going improvement. This kind of participation helps future teachers to go beyond class interactions with their students, to see the broader institutional context of teaching and to start developing the needed skills for participation in collegial work directed at school improvement.

Linda Darling-Hammond states it is important to provide student teachers with an opportunity to experience ‘state-of-the-art practice’ so future teachers can see and emulate high-quality practice in high-quality schools.³⁷ So when these young teachers start their own careers they can transform the environment around them in their own school, and become agents of change. However, this requires support from senior teachers and school leadership.

³⁶ See more on Professional Development Schools in the US at <http://www.ncate.org/ProfessionalDevelopmentSchools/tabid/497/Default.aspx>, and Darling-Hammond, L (2006), Constructing 21st-century teacher education, *Journal of Teacher Education* 57:10, pp. 1-15

³⁷ Darling-Hammond, L. (2006), Constructing 21st-century teacher education, *Journal of Teacher Education* 57:10, p. 11

4.3. Support for beginning or newly qualified teachers

When new teachers enter the profession, they should receive induction support. A review of induction policies and Programmes found that induction Programmes vary from country to country depending on the availability of an induction Programme, funding for induction, evaluation of beginning teachers, and a responsible body.

For example, in Singapore and England, the support Programmes are required by the national government. Whereas in Finland, induction of new teachers into their first teaching position is less uniform than initial preparation. In Finland, it is up to each school and municipality to take care of new teachers' induction to their teaching assignments.³⁸ The European Commission report (2004) suggested that teacher induction is an area that requires further development in Finland.

Beginning teachers in Singapore are given contracts that include two years of coaching from expert senior teachers, who are trained by the NIE as mentors and have released time to serve as mentors and to help newly qualified teachers to learn more about teaching. The government pays for 100 hours of professional development each year for all teachers, in addition to the 20 hours a week they have to work with other teachers and visit each other's classrooms to study teaching. Currently, teachers are also being trained to undertake action research projects in the classroom so that they can examine teaching and learning problems, and find solutions that can be disseminated to others. During the structured mentoring period, beginning teachers teach a reduced load (about two-thirds that of an experienced teacher) and attend courses in classroom management, reflective practices, and assessment offered by NIE and the ministry. Singapore's formal induction Programme is run and closely monitored by the national ministry itself. In-school mentoring is common in England, Programmes are organised by individual schools. Induction Programmes in England are not closely monitored, but first-year teachers have a 10 per cent reduction in their workload.

In Ontario, the New Teacher Induction Programme (NTIP) provides orientation, mentoring, and professional development focused on key areas of need identified by new teachers, including classroom management, communication with parents, assessment and evaluation, and work with students with special needs.

Table 4. Mentoring and induction Programmes

	NQT Induction	Induction Monitored
Finland	Up to the school	Not monitored
Singapore	Required by national government	Closely monitored
Korea	No Programme	No Programme
Ontario	Required	-
England	Required	Not monitored

4.4. In-service training: supporting life-long learning

Teacher training needs to be on-going. This has a very practical reason. It does not matter how brilliant the initial training is, one cannot maintain a current knowledge base after decades of work. As one of the prominent Canadian educators, Paul Cappon notes, 'teachers need to be lifelong learners themselves. You can't inculcate a love of learning

³⁸ Sahlberg, P. (2011), Lessons from Finland, American Educator, Summer, p. 36

unless you live it.’³⁹ The Final Report on the Structure of Initial Teacher Education in Northern Ireland suggests reconsidering the division between pre-service and in-service education, stressing the importance of considering teacher education as ‘a coherent process of professional development *extending well beyond* ... initial professional preparation.’⁴⁰ Effective professional development does not merely upgrade the knowledge of teachers – providing, for example, a better understanding of new technology and teaching strategies – but also allows them to advance along their career path into more senior positions where relevant.

In Singapore the Ministry established a new teaching academy to support teacher-initiated and teacher-led learning opportunities around subject matter across schools. A teacher’s network also supports learning circles, teacher-led workshops, conferences, a website and publications series for sharing knowledge. To support school-based learning, senior and master teachers are appointed to lead the coaching and development of the teachers in each school.

In Singapore and England, teachers are encouraged to participate in professional development activities through the granting of paid leave each year: five days for teachers in England, and 100 hours in Singapore. Teachers may use this time to pursue the offerings available from numerous providers, both public and private⁴¹ or undertake school based professional development.

Finland, meanwhile, provides opportunities for teachers to develop their practice. Within the parameters of the National Curriculum, teachers engage in joint curriculum planning and approve the school-level curriculum. The importance of curriculum design in teacher practice has helped shift the focus of professional development from fragmented in-service training toward more systemic, theoretically grounded school-wide improvement efforts.

Many Finnish teachers take advantage of the opportunity to pursue doctoral studies in education, while simultaneously teaching at school. According to a recent national survey, teachers devote an average of about seven working days per year to professional development in their own time and by time provided by the system. The state plans to double its \$30 million annual budget for professional development of teachers and school principals by 2016.⁴²

The Ontario Ministry of Education has adopted a multifaceted set of capacity-building strategies to support effective leadership, teaching, and student learning. Teachers and principals have six professional activity days every school year to work with each other on activities related to key state and local priorities. The Ministry also fosters capacity building and collaboration by sharing information about existing and emerging successful practices in schools and classrooms through studies, webcasts, and videos of effective practices that can be used in professional development initiatives.

³⁹ Economist Intelligence Unit (2012), *Learning curve: lessons in country performance in education*, p. 22

⁴⁰ Department for Employment and Learning (DELNI) (2014), *Aspiring to Excellence*. Final report of the international review panel on the structure of initial teacher education in Northern Ireland, June, p. 4

⁴¹ Wang A, Coleman A, Coley R, Phelps R (2003), *Preparing teachers around the world*. ETS Policy Information Centre Brief.

⁴² Sahlberg, P. (2010), *The secret to Finland’s success’ educating teachers*, Research brief, Stanford Centre for Opportunity Policy in Education, p.6

In Ontario, the annual evaluation or appraisal system is designed for professional growth. The Annual Learning Plan allows teachers and principals to work together to improve strategies and identify areas of needed professional development.⁴³ In addition, Ontario's Ministry of Education also funds the Teacher Learning and Leadership Programme, which provides job-embedded professional development for qualifying teachers. Teachers who are part of the Programme join a province-wide network, which shares ideas and best practices. The Ministry also provides opportunities for teachers to spend a year or two in the ministry to work on provincial policy. This practice not only enhances teachers' knowledge and skills, it also improves policy by giving teachers a hand in setting it and ensuring that it can be implemented effectively.⁴⁴

In Hong Kong, teachers and principals have to fulfil 150 professional development hours every three years. Schools independently define the mode and content of these professional development activities, and monitor the implementation of teachers' professional development. There is an option for teachers to fulfil professional development requirements with in-school development activities, such as department meetings, class visits, and attending/ hosting lectures. But there is also an opportunity to attend formal courses offered by the Education Bureau, teacher training institutions, or professional associations.⁴⁵

To summarise, the in-service training can take on different forms: it could be a doctoral research on one of the issues of pedagogical practice, or a job-embedded professional development for a teacher. In-service training could be centralised and provided by one institution of post-graduate education as in Singapore or Russia, or it could be done at the conference or a peer-to-peer presentation.

4.5 Salary levels

As it was mentioned earlier, the key component of the success is the status in which teaching is held culturally. Here money can have some (limited) effect, as a signal of status. The South Korean government uses high levels of teacher pay to compensate for large class sizes and to indicate the importance of the profession.⁴⁶ There is also a significant difference between income level of teacher at the beginning of the career and senior teachers (the salary level varies from 55,000 USD to 155,000 USD).⁴⁷

New teachers in Singapore are paid nearly as well as new doctors entering government service, while in Finland teachers earn about the average Finnish salary, the equivalent to the average of mid-career teachers in OECD nations (about \$41,000 in U.S. dollars).⁴⁸

⁴³ Darling-Hammond L and Rothman R (2011), *Teacher and leader effectiveness in high-performing education systems*, Washington, DC: Alliance for Excellent Education and Stanford, CA: Stanford Centre for Opportunity Policy in Education. See also, Teacher performance appraisal system at <http://www.edu.gov.on.ca/eng/teacher/appraise.html>

⁴⁴ 2015-2016 Teacher Learning and Leadership Programme, Ontario Ministry of Education, <http://www.edu.gov.on.ca/eng/teacher/tllp.html>

⁴⁵ Mourshed M, Chijoke C, Barber M (2010), *How the world's most improved school systems keep getting better*, McKinsey & Company, p. 64

⁴⁶ Economist Intelligence Unit (2012), *Learning curve: lessons in country performance in education*, p. 25

⁴⁷ Auguste B, Kihn P, Miller M (2010), *Closing the talent gap. Attracting and retaining top-third graduates to careers in teaching: an international and market research-based perspective*, September, p. 20

⁴⁸ Sahlberg P (2011), *Lessons from Finland*, *American Educator*, Summer, p. 35

Yet each jurisdiction has developed and implemented policies that make teaching attractive, and these efforts clearly have paid off. In addition to offering rhetorical support, leaders have adopted policies to improve teachers' working conditions and sense of professionalism, elevating teaching to the level of other professions like medicine and law.

In Ontario, teachers can earn more as they gain expertise by completing Additional Qualifications Programmes that enhance their knowledge and skills in such areas as special education, English as a second language, and French as a second language.

4.6. Status: treating teachers like professionals

Consistent with the need to promote the status of teaching is its treatment as a profession summarised by Paul Cappon: 'Teachers must be seen as professionals who exercise judgement, not just technicians.'⁴⁹

During the early 1990s teaching was considered a low-prestige career choice in Lithuania – students placed teaching among the lowest options for university study. To professionalise teaching the Lithuanian Ministry of Education introduced a certification system. The Ministry wanted to make sure that teachers had the pedagogical competence necessary to deliver the new curriculum that was introduced in 1996. Simultaneously, the Ministry established a teaching career path and brought in commensurate salary increases for each successive step on the ladder in order to make the teaching profession more appealing for young people. Teachers were certified through assessments conducted by their school, district, or a national committee, depending on the professional designation; three criteria were used for each subject taught: the teacher's instructional practice (based on observation), the fulfilment of in-service training requirements, and their knowledge of teaching theory.⁵⁰

In many high-achieving nations, support for high-quality teaching is a key. Finland, Sweden, Ireland, the Netherlands, Hong Kong, Singapore, South Korea, Japan, Australia, and New Zealand have poured resources into teacher training and support in recent years. These countries routinely prepare their teachers extensively, pay them well in relation to competing occupations, and provide them with lots of time for professional learning. They also distribute well-trained teachers to all students by offering equitable salaries, sometimes adding incentives for harder-to-staff locations.

In Finland and Singapore the preparation of teachers is subsidised by the government. In Finland, Singapore, Sweden, Norway, and the Netherlands teacher education is paid for completely by the government, and candidates earn a stipend or salary while they train. Typically, this includes a full year of training in a school connected to the university, along with extensive coursework in pedagogy and a thesis researching an educational problem in the schools. In Ontario, the government covers about two-thirds of the cost of candidates' preparation. With those subsidies, promising students can enter teacher education knowing that they will not carry large debts once they graduate.

Finland has built professionalism into its system. Because teachers are so well prepared, they are also well respected and much trusted, receiving high status in the society and

⁴⁹ Economist Intelligence Unit (2012), *Learning curve: lessons in country performance in education*, p. 25

⁵⁰ Mourshed M, Chijoke C, Barber M (2010), *How the world's most improved school systems keep getting better*, McKinsey & Company, p. 63

operating with significant autonomy inside the classroom. Finnish schools are not governed by external standardised tests, which are not required at any grade level. Instead, the nation relies on teachers to develop their own assessments of student learning based on the National Curriculum. The country has assessed that teachers know better how students learn and they can make their own judgements.

Furthermore, teaching conditions in Finland are highly desirable. Schools are equitably funded, well stocked, and uniformly well supported; class sizes are fairly small; students receive food and health care as well as educational supports. In addition, teachers' instructional hours are comparatively short, so teachers have time for instruction, planning, meeting with students and parents, and grading papers, while also maintaining their personal life. Only 10-15% of teachers leave the profession during the course of their career, an annual attrition rate of less than 1%.

Few teachers leave the profession in any of these jurisdictions. In Singapore, the attrition rate of teachers is less than 3% annually. Based on a recent Ministry of Education survey, teachers rank the following three reasons as key to staying in teaching:

- A positive culture with a strong sense of mission;
- Good compensation and rewards benchmarked against market rates; and
- A wide range of opportunities for professional growth and development.⁵¹

4.7. Teacher as researcher: role of research in teacher's everyday practice

Research can make a positive contribution to each aspect of teachers' professional knowledge: practical wisdom, technical knowledge and critical reflection. And some researchers argue that good research can make a significant and much-needed contribution to educational policy.⁵² For example, by engaging with research findings, teachers enrich their own practice while contributing to the greater body of research by providing insight into the challenges and complexities of educational practice.

As mentioned earlier in Finland, research is an imperative part of teachers' pre-service training and preparation, and it has four main components: 'first, the study Programme is structured according to the systematic analysis of education. Secondly, all teaching is based on research. Third, activities are organised in such a way that students can practise argumentation, decision-making and justification while investigating and solving pedagogical problems. Fourth, students learn academic research skills.'⁵³

Teacher education is therefore based on the idea of the teacher-as-researcher: 'teachers are trained to reflect and analyse their work, think 'scientifically', examine their own world of values and adjust their teaching continuously.'⁵⁴ As was mentioned earlier, during pre-service training students are expected to undertake research and write a research-based thesis to complete their Masters' degree. Both in the early stages and

⁵¹ Alliance for Excellent Education (2011), *Teacher and school leader effectiveness: lessons learned from high-performing systems*, March, p. 7

⁵² See Bridges D, Smeyers P, Smith R, Eds. (2009), *Evidence-based education policy: what evidence? What basis? Whose policy?* London: Wiley-Blackwell.

⁵³ Toom et al (2010), p. 333, cited in *The role of research in teacher education: reviewing the evidence* (2014), Interim Report of the BERA-RSA Inquiry, January, p. 18

⁵⁴ Makinen (2010), cited in *The role of research in teacher education: reviewing the evidence* (2014), Interim Report of the BERA-RSA Inquiry, January, p. 18

throughout their professional career, teachers are encouraged to make an active contribution to the knowledge base on effective teaching practices, as well as taking on significant responsibility for curriculum and assessment.

Singapore draws upon research to inform the design, structure and content of its teacher education Programme. As in Finland, the Singapore education system is committed to ensuring that all teaching is based on evidence of effective practice, and revised in light of new ideas, research evidence and system data (for example, using the results of student assessment to fine-tune the system and the curriculum). But importantly, as the whole Singaporean system of education represents a systematic attempt to create a culture of enquiry, critical reflection and deliberation within schools and classrooms, in which teachers' engagement *with* research (rather than active engagement *in* research as in Finland) is deeply embedded.

As summarised here, research literature and individual country reviews show that high-performing education systems develop capacity from the bottom up, and rely heavily on methodologically rigorous research-based knowledge to inform their practice.

Table 5. Role of research in teacher education⁵⁵

Teachers	<ul style="list-style-type: none"> • Student teachers learn about research findings +/- methodologies • Student teachers do research as part of requirements • Teachers draw on research findings to inform their individual practice • Individual engagement in research study or thesis (e.g. Masters)
School	<ul style="list-style-type: none"> • Experienced staff members act as mentors for student teachers • School staff/pupils take part in researcher-led study or evaluation • Collaborative engagement in research: school staff engage in co-designed research with specialist support • School leaders encourage and support entire staff to draw on relevant research findings, update their learning, share knowledge and engage in enquiry-oriented practice in research-rich environment
Higher education institution	<ul style="list-style-type: none"> • Professional research projects about/for education • Teacher educators read research and use in own courses • Individual evaluate their own practice and use to inform teaching • Collaborative engagement in +/- or with research to inform design and revision of research-based teacher education Programmes.

⁵⁵ Research and teacher education: the BERA-RSA Inquiry, Presentation to BERA Conference, September 4, 2013

4.8. Career paths: investing in leadership

Teachers continue to advance throughout their careers, to grow professionally and take on leadership responsibilities, based on demonstrations of competence. With the help of the government, teachers in Singapore can pursue three separate career ladders:

- They can remain in the classroom and become lead and master teachers or mentors to other teachers;
- They can take on specialist roles, part-time or full-time, like curriculum specialists or guidance counsellor. Teachers can take these additional responsibilities at the school level or at levels all the way to the ministry or
- They can take the leadership track and become school, district, regional or national administrators.⁵⁶

These opportunities bring recognition, extra compensation, and new challenges that keep teaching exciting. The Ministry of Education in Singapore is constantly looking for ways to recognise and promote teacher leadership, both for individuals who have demonstrated various talents and for the teaching profession as a whole. The National Institute of Education – the country’s only teacher training institution – is strongly focused upon preparing teachers to teach a curriculum focused on critical thinking and inquiry.

Table 6. Career tracks for teachers in Singapore⁵⁷

Teaching track	Leadership Track	Senior Specialist Track
<ul style="list-style-type: none"> • Senior Teacher • Lead Teacher • Master Teacher • Principal Master teacher 	<ul style="list-style-type: none"> • Subject Head/Level Head • Head of Department • Vice-Principal • Principal • Cluster Super Intendant • Deputy Director • Director • Director-General of Education 	<ul style="list-style-type: none"> • Senior Specialist 1 • Senior Specialist 2 • Lead Specialist • Principal Specialist • Chief Specialist

Because Finnish teachers take on significant responsibility for curriculum and assessment, as well as experimentation with and improvement of teaching methods, some of the most important aspects of their work are conducted beyond traditional teaching roles. Teachers take on many of the roles conducted by educational consultants and specialists in other countries, but because teaching is highly professionalised,

⁵⁶ Singapore has a very sophisticated system for career growth (13 levels within each track). Examples are provided in Table 6. Teachers do not automatically get promoted to the next level. Teachers’ performance on the Educational Performance Management System (EPMS) determines if they are eligible for advancement up the career ladder. The EPMS includes an annual evaluation in three areas: Professional Practice, Leadership Management and Personal Effectiveness. Teachers are expected to set and meet personal goals for their work, and improve their competencies. For more information, please see Ministry of Education, Singapore at <http://www.moe.gov.sg/careers/teach/career-info/>

⁵⁷ Ministry of Education, Singapore. Enhancing Your Strengths: Career Information at <http://www.moe.gov.sg/careers/teach/career-info/>

diverse responsibilities are handled within the teaching role, without teachers leaving teaching or being placed in more bureaucratically respected, highly compensated roles.

In Singapore, Finland and Ontario, school leaders are expected to be *instructional leaders*. They are expected to know curriculum and teaching and to provide guidance and support to their colleagues. While management and budgeting are important aspects of leaders' jobs, their instructional leadership role is paramount. Effective instructional leaders can evaluate teachers skilfully, provide them with useful feedback, assess the school's needs for professional development, and direct instructional resources where they are most needed.

To help ensure that every leader can fulfil this role, in all three jurisdictions administration proactively recruits principals from among the ranks of expert teachers who exhibit leadership potential. In Finland, in fact, principals by law must be qualified to teach in the school they lead. That means not only that someone from outside of education cannot become a principal but also that an elementary teacher cannot become a principal in a high school. The three jurisdictions also provide training for principals, which is designed to ensure that they can assume the instructional leadership role expected of them.

In Ontario, prospective principals take part in the Principals' Qualifications Programme (PQP), a system consisting of two parts, each totalling 125 hours, plus a practicum. The programme is provided by faculties of education and principals' associations and it emphasises instructional leadership and support. In addition to completing the PQP, principals must have an undergraduate degree, five years of classroom experience, qualifications in three divisions of the school system, and a master's or double-subject specialist degree. Once appointed, all principals and vice principals receive mentoring for their first two years in each respective role. This mentoring, fully funded by the Ministry, is organised around a learning plan to guide the support.

In Singapore, teachers with leadership potential are identified early and groomed for leadership positions, generally progressing to subject head, head of department, vice principal, and then principal. Potential principals, who are selected after a vigorous interview process that includes a two-day simulation test, enter the six-month Leaders in Education Programme. This programme, conducted by the Ministry of Education, includes education coursework, field-based projects, and mentoring from senior principals, as well as examinations of other industries and visits to other countries to learn about effective practices.⁵⁸

All of the programmes also include extensive clinical training. In Finland, for example, some university-based programmes include a peer-assisted leadership model, in which part of the training is done by shadowing and being mentored by the senior school principal.

Table 7. Helping teachers grow professionally⁵⁹

⁵⁸ Darling-Hammond L. Rothman R., Eds (2011), *Teacher and leader effectiveness in high-performing education systems*, Washington, DC: Alliance for Excellent Education and Stanford, CA: Stanford Centre for Opportunity Policy in Education, pp. 14-15

⁵⁹ Based on Exhibit 8, in Mourshed, Chijoke, and Barber (2010), *How the world's most improved school systems keep getting better*, McKinsey & Company, p. 28

<p>Professional development: The system raises professional development requirements and provides more opportunities for self-, peer-, and centre-led learning and development</p>	<ul style="list-style-type: none"> ▪ In-service training programmes ▪ School-based coaching
<p>Coaching on practice: Instructional coaches work with teachers to strengthen their skills in areas such as lesson planning, student data analysis, and in-class pedagogy</p>	<ul style="list-style-type: none"> ▪ Career tracks ▪ Teacher community forums
<p>Career pathways: The system creates teacher and leadership specializations through career pathways, raising expectations with each successive pathway rung and increasing pay accordingly</p>	

5. The context of Kazakhstan and the particularity of the CIS context

Countries of the Commonwealth of Independent States (CIS) inherited a centralised Soviet education system. Before the collapse of the Soviet Union teachers had relatively high status in society and salaries were above the average. Teachers played an important role in the state system, and it is believed that their material wellbeing was a national priority. A highly centralised and tightly regulated Soviet education system included various teacher training institutions, universities and specialised colleges. The pre-service training for teachers involved education in accordance with the subject they were going to teach or the level of teaching: secondary, primary or other.

The transition to market economies after the collapse of the Soviet Union caused chaos in education systems. All the republics of the former Soviet Union experienced decades of perpetual reforms in the area of education, with a background of decreasing education funding, and this seriously impeded the income level of teachers, as well as the attractiveness of the profession and teacher status. A recent UNICEF report details the problems of teacher development and teacher salaries in the region of Central and Eastern Europe and the Commonwealth of Independent States (CEECIS). The report mentions that in majority of CEECIS countries there is a trend towards the feminisation of the teacher profession, and towards an older age profile: the majority of the teaching force is above retirement age. Despite high enrolment numbers and scholarships available for applicants, often students applying to teacher programmes were earlier rejected by other universities. Moreover, after graduating with degrees, many students do not enter into teaching careers. While at the start of their careers young teachers often lack support from more experienced colleagues, they have to deal with long hours and overcrowded classrooms, the in-service training offered is quite formal and salaries remain extremely low, varying from 20 USD to 398 USD for teaching load of 18-22 hours.⁶⁰

According to the Russian Ministry of Education and Science, there are three problems influencing the low quality of teachers, including low employment levels for graduates, lack of opportunities to select motivated applicants, and the low average scores of high school graduates applying to the pedagogical institutions.⁶¹ Another report points out that share of current students in pedagogical institutes interested in working in schools after graduation is decreasing (e.g. only 22.3% students at the first year of education are interested in teaching at school level, this number drops to 17.3% by 3rd year, and to 10.1% by the time of graduation).⁶² To change the existing situation, in 2014 the Russian Ministry offered a new concept of teacher education development that puts more emphasis on clinical practice in a sense that 'school becomes an experimental platform for future teachers.'⁶³ Students will come to schools for a semester to be part of the education process and to apply the theoretical knowledge they received earlier.

⁶⁰ For more detailed overview, please, see UNICEF (2011), *Teachers: Study on Recruitment, Salaries of Teachers in the CEECIS Region*.

⁶¹ РИА Новости, Минобрнауки планирует изменить подходы к подготовке педагогов в России, 10/01/2014, at <http://ria.ru/society/20140110/988600848.html#ixzz3IwqwxcdL>

⁶² Путь к доске и указке, «Русский репортер» №6 (334) 13/02/2014, http://expert.ru/russian_reporter/2014/06/put-k-doske-iukazke/, Собкин В.С., Ткаченко О.В. Студент педагогического ВУЗа: жизненные и профессиональные перспективы, Труды по социологии образования. т. XI — XII. вып. XXI. — М.: Центр социологии образования РАО, 2007. — 200 с.

⁶³ О проекте концепции поддержки развития педагогического образования (2014), <http://vestnikedu.ru/2014/03/o-proekte-kontseptsii-podderzhki-razvitiya-pedagogicheskogo-obrazovaniya/>, See also Interview with advisor to the Minister of Education, March 2014 at <http://vestnikedu.ru/uploads/2014/03/Isak-Frumin.pdf>

This new system, which should be introduced in 2015-2017, will require establishment of networks between pedagogical institutes and schools. The new concept also wants to make pre-service education more flexible for students who want to change their education trajectory. This includes those students in pedagogical institutes' who understand by 2nd or 3rd year of their studies that they do not want to work in schools, as well as those who decide to join the profession, the latter will be given an opportunity to apply. The Russian government would also like to introduce more opportunities for peer-to-peer exchanges and professional development for young teachers.⁶⁴

At the end of October 2014, the Ministry of Education and Science of Ukraine also offered a new concept of education development for 2015-2025, which involves a reform of pre-service and in-service teacher education and leadership training for teachers. This concept suggests drastic changes to the existing system, but the most interesting points include measures aimed at encouraging research work at school level, international and internal academic mobility. The Ministry also made a promise to raise the average annual salary twice by 2020 (from 8,800 USD per year to 16,000 USD). It is also proposed to change the system of remuneration of teachers and school managers, renouncing the '*stavka*' system and switching to full day payment with further transition to the new system of remuneration of teachers, including an award component.⁶⁵

After independence 1991, like many other countries of the Former Soviet Union, Kazakhstan experienced continuous reform in the area of education for examples, internationalisation, introducing the Bologna process in higher education and finally, the development of educational institutions such as Nazarbayev Intellectual Schools (NIS) and Nazarbayev University (NU).

Nazarbayev Intellectual Schools in Kazakhstan are an example of an innovative approach to secondary education. From the beginning, NIS schools put more emphasis on skills development, on what students can do rather than on mere memorisation and the recall of information from the textbook. This makes the NIS experience very unique.⁶⁶ Teachers at NIS adopted different approaches to teaching and learning that were more student centred, more interactive, more inquiry based. This approach required more from teachers and teaching in terms of resources, curriculum, professional development, textbooks, assessment systems and a resource rich environment that permitted student investigation, creative and practical work.

While it is easier (and more appropriate) to compare NIS schools with the best schools in the high-performing countries rather than with mainstream schools across Kazakhstan, NIS is mandated to share its best practice with the mainstream schools in Kazakhstan. Therefore, an ambitious and empirically –based reform for teacher professional development is currently under way which aims to provide a new structure for multi-level training programmes developed by the Centres of Excellence of the AEO

⁶⁴ О проекте концепции поддержки развития педагогического образования 18/03/2014 <http://vestnikedu.ru/2014/03/o-proekte-kontseptsii-podderzhki-razvitiya-pedagogicheskogo-obrazovaniya/>

⁶⁵ Ирина Лопатина, Люди желают получить удобное образование. Школам и вузам готовят масштабное реформирование, 6/11/2014 at <http://apostrophe.com.ua/article/society/science/2014-11-06/lyudi-jelayut-poluchit-udobnoe-obrazovanie/703>; Презентован проект Концепции развития образования, 24/10/2014 at <http://ru.osvita.ua/news/43501/>

⁶⁶ Shamshidinova S, Ayubayeva N, Bridges D (2014), Implementing radical change: Nazarbayev Intellectual Schools as agents of change, in Educational reform and iInternationalisation: the case of school reform in Kazakhstan, edited by Bridges, D. Cambridge University Press, p. 78

NIS in co-operation with the University Cambridge Faculty of Education. The programme has three levels:

- Basic: training teachers to lead learning process in the classroom;
- Intermediate: training teachers to lead learning processes in the schools;
- Advanced: training teachers to lead learning processes of the network of schools. This level essentially trains the trainers that will deliver lower level programmes.

The three level programme is offered by the Centres of Excellence of the AEO NIS and Joint stock company 'Orleu'. The government has set a goal for upgrading the skills of 120 000 teachers with this programme over the next 5 years⁶⁷. Also a number of teacher educators from the pedagogical institutions were trained to serve as trainers of the levelled programme and there is a plan to integrate the content of the programme to pre-service teacher training course.

⁶⁷ OECD (2014), Reviews of national policies of education: secondary education in Kazakhstan, p.178.

Conclusion

Over last 20 years, teacher education has been a subject of much debate and reform. The evidence from different education systems in different countries shows that the most important factor in determining how well children do is the *quality of teachers and teaching*. Many examples of international best practices and characteristics of successful teacher education programmes highlight the following trends:

1. The most able and most suitable candidates should be admitted in the teacher education programmes. Finland, South Korea and Singapore – examples of education success and the top countries in McKinsey Index – obtain their annual teacher intake from the top 5-10% of graduating students.
2. Programmes should be academically strong, practice-focussed and based on relevant research. In-service education puts strong emphasis on cooperative and problem-based learning, reflective practice, and computer-supported education, effective, innovative university teaching practice. Future teachers learn how to create challenging curriculum and how to develop and evaluate local performance assessments that engage students in research and inquiry on a regular basis.
3. Theory and practice should be closely inter-related, involving close partnership between teacher education institutions and schools. This partnership allows future teachers to experience interactions with their students, but also to see the broader institutional context of teaching and to start developing needed skills for participation in collegial work directed at school improvement.
4. There should be strong links between initial teacher education and continuing professional development (CPD). As a result, teacher education becomes a coherent process of professional development.
5. Programme design should be based on evidence about how student teachers learn to teach.⁶⁸

In addition, to attract the most able young people to teaching, *respect for teaching needs to be built*, and this requires significant financial support for teacher education, the professional development of teachers, equitable salaries, and comfortable working conditions. Finnish experience also shows that professional autonomy, which requires strong competence and preparedness, makes teaching a valued career.

The *successful teacher education systems* in Finland, Singapore, the Netherlands and New Zealand *require multiple components, not just a single policy, and these components are intended to be coherent and complementary*, to support the overall goal of ensuring that each school in each jurisdiction is filled with highly effective teachers and is led by a highly effective principal. Policymakers in high-performing education systems recognize that all these components need to work in harmony or the systems will become unbalanced. For example, placing too strong an emphasis on recruitment of qualified individuals without paying attention to professional development and retention of teachers in the profession could result in high levels of turnover.

It is a long-term process. High-performing education system did not achieve success overnight. The evolution of the education system in Finland lasted for almost 35 years. Singapore provides an example of how a system evolved from low performing to great and the journey took almost forty years. Singapore policymakers describe the evolution

⁶⁸ Department for Employment and Learning (DELNI) (2014), *Aspiring to Excellence*. Final report of the international review panel on the structure of initial teacher education in Northern Ireland, June.

of education system in three phases: ‘Survival-driven’ (1959-78), ‘Efficiency-driven’ (1979-96), and ‘Ability-driven’ (1997-present). Singapore’s Survival phase was primarily focused on enrolment and ensuring that every child would attend school. This phase resulted in new schools being built and the teaching force doubling over a period of ten years. The Efficiency phase focused on reducing performance variation across the school system. During this period, students were streamed into different tracks based on their aptitude. Simultaneously, in 1980 Singapore created the Curriculum Development Institute of Singapore (CDIS) to develop teaching materials that could be used by less-experienced teachers.

As the system of education was becoming stronger, Singapore moved from rigid prescription to greater flexibility. By the end of the 1980s, Singapore allowed greater autonomy, by establishing Independent Schools and Autonomous. By 1995, Singapore’s school system was among the top-performing systems in the world. The Curriculum Development Institute of Singapore closed its doors in 1996 because ‘it was no longer needed,’ and in 1997, Singapore launched ‘Thinking Schools, Learning Nation’, marking the start of its Ability phase and emphasizing a shift in focus toward enabling each student to reach the maximum of his or her potential. During this phase teachers received greater freedom in classroom practice, while principals acquired decision-making rights on school management matters. The peer-based forums for schools leaders were introduced to share effective teaching and learning practices across nation. During this period Singapore focused on strengthening the calibre of its teachers and principals so that they could make the best use of their greater freedoms.⁶⁹

In each of high-performing countries systems were *continually being refined*, meaning that the evolution of education system never stops. In Singapore more recently it has focused on strengthening the networks of Professional Learning Communities (PLCs) in schools that encourage teachers to collaborate with one other in reviewing and improving their classroom practice. In Finland, the Ministry is considering strengthening induction and professional development for practicing teachers. Ontario has surveyed teachers and found that there were some gaps in initial preparation in areas like classroom management and the teaching of students with special needs, so the province is revamping its induction system to address those areas.

According to the Pearson 2012 report, *high-performing school systems combine demanding standards, low tolerance of failure, and clear articulation of expectations* with ‘a lot of professional responsibility within a collaborative work organization at the front line,’ for both teachers and schools.⁷⁰ To prepare students for the future, high-performing schools require high-performing professionals who could be provided by the system of education.

⁶⁹ For more detailed overview of Singapore evolution, please see Mourshed, M., Chijoke, C. and Barber, M. (2010), How the world’s most improved school systems keep getting better, McKinsey&Company pp. 50-52

⁷⁰ Economist Intelligence Unit (2012), Learning curve: lessons in country performance in education, p. 25

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