**Education, Skills and Human Development for 2041**

**Minhaj Mahmud**

Bangladesh Institute of Development Studies

Email: minhaj@bids.org.bd

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**Abstract**

Bangladesh has witnessed structural transformation in terms of sectoral shares of GDP implying that structural changes in employment should follow. Thus equipping the labour force with the kind of education and skills in line with structural transformation in the economy will be crucial for achieving further advancement of the economy. The perspective plan 2021-2041 envisions Bangladesh to enter into knowledge based societies, requiring greater emphasis on education and skill through research and development. It is argued that a knowledge based society would be crucial for the level of economic development to the status of an upper middle income country. This chapter is an attempt to inform policies on education, skill development and overall human development strategies for addressing the human development challenges for 2041. Importantly, globalization and the advancement of technology will require human entered development paradigm implying that knowledge and expertise will be crucial for competitiveness of individuals and the country. Thus the efficient development and use of human resources will be crucial for adapting to changing global economic environments necessitating a workforce with transferable skills and competencies in order to propel the engine of growth.

1. **Introduction**

Bangladesh government has embarked on a twenty years perspective plan 2021-2041 with the aim of achieving upper-middle income status by the year 2031 and higher middle income status country by the year 2046. The perspective plan sets its developmental goals with the view to eradicate extreme poverty, while attaining the status of upper middle status by 2031. It is assumed that past development achievements and favourable future growth prospects would make such goals towards realisation. However, the country faces many inherent development challenges that are documented in the national policy documents such as the 7th five year plan 2016-2020(SFYP 2015). As human development remains a strategic input to achieving the goal of poverty reduction and inclusive growth, successive plans of the government of Bangladesh have put considerable emphasis on this. There has been considerable progress in expanding education at primary, secondary and tertiary levels both for male and female in Bangladesh. Indeed Bangladesh is one of the countries to achieve tremendous success on achieving millennium development goals (MDGs) including the progress on universal primary schooling and gender parity in education. However, quality of education in particular learning outcome and low levels of skills remains a serious concern Bangladesh, like other developing countries. The former also got into critical attention in the sustainable development goals (SDG) that sets out the global objectives to end poverty and hunger. As education importantly links all the sustainable development goals and the need for improving the quality of education and addressing the learning crisis can hardly be over emphasized for the country’s long run economic development. For example, Hanushek and Woessmann (2009) suggest that quantitative expansion of schooling without emphasis on quality might be counterproductive for developing countries. In Bangladesh, as shown in Islam(2015), the relationship between the level education (schooling) and unemployment has been shown positive implying also that mere quantitative expansion of education and training cannot address the future human development challenges. The challenges that the education sector faces include low quality of learning, inadequate technical and vocational education and training, and limited tertiary education facilities as well as lack of inclusion in access to quality education. While this might be reflective of the low public expenditure in education compared both low and high performing countries in terms of education achievements, there is also lack of holistic approach towards education and training policies of the country. Bangladesh’s public expenditure on education (2.1 percent) is considered very low even compared with in south Asia (India 3.7%) and South East Asia (Malaysia 4.3%, Vietnam 5.3%). While high performing systems appear to spend more on education as a percentage of GNP, they also accompany with sound policies determining the success.

One of the six goals enunciated under the perspective plan is to “establish the country as a knowledge hub country for promoting a new skilled based society.” The framework of perspective plan focuses on several policy variables, to influence growth, employment and poverty reduction targets, that includes total factor productivity improvement by emphasising on average schooling of 11 years, quality education, skill development and investing in education around 5 percent of GDP. Importantly, as the country reaches to higher growth trajectory there will be expected commensurate rise in the demand for workers with higher education and skills. In the backdrop of increasingly globalized and highly competitive markets as well as rapidly changing technologies, it will become crucial that education systems aim to produce well-balanced human resources with appropriate skills. The important question is then how the country’s education system can be geared towards innovation and economic growth. While greater attention needs to be devoted to secondary and tertiary level education as well as vocational and technical education and training, reform of higher education to embrace global transformation as well as putting greater emphasis on research universities would be immensely important. When it comes to higher education, the link between education and human capital creation, labour market outcomes as well as the overall development strategy assumes greater emphasis than merely producing graduates. This will require the education policies to be aligned with and be an integral part of the development strategy.

The chapter is organized as follows. In Section 2 we discuss the linkage between education, productivity and growth, in order to provide an understanding of the importance of human development for growth. The following Section briefly reviews the achievements, challenges of overall education sector. In doing so it also highlights some on-going policies as well as structural reform challenges existing in the sector. The Section 4 discuss the linkage between education and labour market outcome, keeping in view of structural changes in eth economy and the future demand for skilled human resources and essentially shed light on some indicative scenario for human capital need in the long run. The Section 5 and Section 6, respectively, review the international evidences with respect to education and skill development as well as higher education reform. Section 7 discusses some policy options, in line with international evidences, with regards to future human development of the country and the Section 8 concludes the chapter.

1. **Education and Economic Growth**

The contribution of education to economic growth is seen both from micro and macro perspective respectively from the view of raising the productivity of individuals as well as labour productivity growth. According to the endogenous growth theory literature, higher investment in education drives growth of national income through human capital improvement (e.g. Barro 2000). Schulz (1991) suggested strong correlation between educational attainment and productivity of labour force implying that education is growth enhancing. Some studies also suggest that investment in education does not necessarily promote economic growth. Additionally education has positive impact on investment (both domestic and foreign investment) as well as innovation (Hawkes and Uger 2012). Importantly education contributes to the economy facilitating shift of labour from low productive sectors to high productive sectors.

The link between education and productivity is usually investigated by looking at the rate of return to education, which is estimated by assuming that wage (or earning) is a function of years of schooling, controlling for other characteristics of an individual such as age, gender, experience and ability (see Mincer 1974). The hypothesized relationship, in such earning equation, between income and education level is positive implying that educated workers have higher marginal revenue of product of labour as they are more productive. Private rate of return to education can be estimated by regressing an individual’s income on the level of education. The same hypothesis is postulated at the macro level, whereby growth accounting framework is applied to discern the contribution of education (quality of labour) as an input on growth of output as well as use of cross country growth regressions are made to estimate the relationship between education and growth (see Stevens and Weale 2003). Early literatures suggest that low income countries could harness more return from education. Interestingly, the rate of return on education is shown higher for primary education compared to other schooling levels in case of developing countries (Islam 2015). For example, the republic of Korea achieved the goal of universal primary education in 1960 and the country benefited from the workers having basic education in its early phase of industrialization (Tzannatos and Geraint, 1997). However, later studies shown that private rate of return on higher education as well as that of secondary education was higher compared to rate of return on investment in higher education primary education in many developing countries including India and South Africa. Barro and Lee (1994) show that rate of secondary school enrolment is positively related with rate of growth. Importantly, education and skill development played crucial role in case of high economic growth achieved by the East Asian countries. For example, education has been behind Vietnam’s development success. The country’s committed effort to enhance access to primary education as well as enhancing quality made it to have well-educated workforce. Recent studies show that the literacy and numeracy of its adult workforce is comparable to developed countries (VDR 2014). Also, Korea drew global attention for its high growth over many decades making its transformation from a poor country to a developed one, a success story that is widely attributed to its focus on education from the early years. Korea gradually improved its education system making it responsive to economic development and the average years of schooling in Korea increased from 5.7 years in 1970 to 9.5 years in 1991 and 10.6 years in 2001, commensurate with its economic progress during which time high school graduates entering higher education has increased from 26.9 percent in 1970to 33.2 percent in 1991 and 70.5 percent in 2001(Song 2003). Recent evidence have shown higher returns, in terms of increasing trend of wage, from tertiary education (Colclough, Kingdon, and Patrinos 2010; Montenegro and Patrinos 2014).

In case of Bangladesh, Sen and Rahman (2017) observed that the past growth in was largely driven by relatively unskilled labour in the sense that “the earnings of relatively unskilled labour (having no or little education) have surpassed the growth in skilled labour.” Based on the analysis of labour force surveys, they also suggest that relative gains to secondary and tertiary education as opposed to “no education” have diminished between the period 2000 and 2010. As an unintended consequence of higher gains for unskilled workers, the demand for secondary and higher education did not commensurately rise, as the authors also argue (Sen and Rahman 2017). Indeed, despite success made in enrolments, average years of schooling in Bangladesh still remains low compared to its neighbouring counties and countries in South East Asia. While average years of schooling in Bangladesh is 5.1, this is 5.8 in India, 10.9 in Sri Lanka and 10.1 in Malaysia and 7.8 in Vietnam.

These evidences has important implications for formulating long-term policies for human development for a developing country like Bangladesh, which also suggest that shortage of human capital may also appear as constraints to further growth. Importantly, globalization and the advancement of technology will require human entered development paradigm implying that knowledge and expertise will be crucial for competitiveness of individuals and societies. Thus the efficient development and use of human resources will be crucial for adapting to changing global economic environments necessitating a technically skilled workforce driving the engine of growth.

1. **Education Sectors in Bangladesh: Achievements, Challenges and Policies**

In this section we briefly review the current achievements in primary, secondary and higher education, while also highlighting the remaining challenges and on-going policies for improvement. The section highlights that quality of education and the education system still faces many challenges, despite success in terms of access and equity mostly at the primary level. We also review the management and logistic issues in ensuring quality of education. The following discussion to some extent draws on the review provided in the Seventh Five Year Plan (SYFP, 2015).

**3.1 Primary education**

Bangladesh has made tremendous progress in terms of primary school enrolment, while almost achieving the target of universal primary education under the MDG target. The net primary education enrolment rate (NER) of Bangladesh increased from 62.9% in 2000 to 97.7% in 2014, while gross primary enrolment rate was 108.4% in 2014. There has been improvement in primary cycle completion rate as well as reduction in drop-out rates as well as a significant reduction of the gender disparity in access (Kono et. al 2018). Further to government policies and engagement in improving education (Ravallion and Wodon, 2000; Ahmed and Ninno, 2002), schooling has been provided by NGOs in Bangladesh, with the continued donor support for targeted programs and interventions resulting improving school enrolment.

The Primary education development program (PDEP) initiated during the period of the Sixth Five Year Plan aimed at further improving the standard of primary education. This has been supported by the Asian Development Bank (ADB) Program known as primary education development program (PEDPII). It highlighted six areas where progress was needed: learning outcomes, participation, reducing disparities, decentralization, and effective use of budget allocations as well as program planning and management. It also put emphasis on effective resource use to improve completion and quality of teaching.

The government sets the target for the 7Th FYP, in line with the national education policy (NEP 2010), that includes introduction of pre-primary and mandatory primary education for all. For the development of primary education, the main targets include 1) improving teaching and learning process in schools, 2) decentralization of management and enhance effectiveness, 3) effective planning and management. Also greater emphasis is to be given on non-formal primary education. The PEDPIII was undertaken to further improve primary education quality in addition to widen its access. Under the PDEPIII notable progress was made in terms of enrollment (98 percent net enrollment achieved), teacher recruitment, organizational development and capacity development, enhancement of educational management and information system (EMIS), progress in universal coverage of school level improvement plan (SLIP), progress in plan for decentralization, progress in quantitative training for teachers, progress in school infrastructure development(See SYFP 2015). It has been also noted that some targets within the primary education development plan did not see much progress and needed further attention. These included: firstly, allocation on primary education as a proportion to total education expenditure resulting from lack of allocation on education as a percentage of GDP; secondly, completion rate in primary education below target, repetition rates not decreasing at desired level, teachers training and designing incentive for teachers, capacity development of quality enhancing institutions NAPE and NCTB still remains a big concern. More importantly, the lack of adequate student learning remain a serious concern in Bangladesh, as in other developing countries; it is found that five full years of primary schooling taught less than 1 in 10 children how to do simple mathematics (Asadullah and Chowdhury 2013).[[1]](#footnote-1) On improving the quality of primary education, the policy focus would remain on learning outcomes and skills for life and work (see Bangladesh Education Watch Report 2016).

**3.1.1 Early childhood development**

The early childhood education or preschool program with organized learning component is gaining importance to prepare children for primary school enrollment as well as to facilitate their psycho-social development. Although the government’s education policy specifies two years of early education, as reported in Micro Indicator Cluster Survey 2015(MICS 2015), only 13.4 percent of children of age 36-59 months are receiving early childhood education. Another study reports that the net enrolment at the pre-primary level of education is still lagging behind (40.4 percent) the world average of about 54 percent (or a median of about 59 percent) (Bangladesh Education Watch 2016).

**3.1.2 Non-formal education**

The successive governments in Bangladesh have been implementing non-formal education programs to empower its people. In the 1990s the government launched major non-formal education program focusing basic literacy. Later in 2006, a non-formal education policy was adopted that envisages increasing the number of literates, providing need based continuing education, pre-voc1 and pre-voc2 level of education, promotion and equivalency between formal and non-formal education and ensuring the sustainability of non-formal education. The policy also emphasized remedial education program, such a second chance schooling, for dropouts to enhance skill for people entering labour market. The governments goals, in the area of non-formal education, include establishing community based network of learning centers in each union, extending opportunities for effective skill training and establishing non-formal education board to facilitate opportunities for attaining higher education and skill through establishment of equivalence between formal and non-formal education(SFYP 2015 ).

**3.2 Secondary education**

In the case of secondary education, the enrollment as well as completion rates suggest that large proportion of primary completers do not continue to secondary and that a large proportion of students do not pass the secondary school certificate (SSC) examination. The issues of learning and drop-out (both physical as well as virtual drop-outs) still remain a serious concern at the policy level. Comparing with international trend, the secondary continuation rate of Bangladesh is almost at the average level predicted by country’s GDP per capita, while the repetition rate is slightly lower than the international average (see Kono et al 2018). They also suggest that in terms of female-to-male gender gap, Bangladesh recorded a slightly better continuation rate, but worse in the repetition rate when compared with the international trend. These findings have implications for quality and/or learning outcomes in schools.

According to the government’s documents, some of the programs to enhance the secondary education currently underway include: 1) the secondary education sector investment program (SESIP 2014-17) under which support for teaching materials and teachers training and stipend are given; 2) Teaching quality Improvement II (TQI-II 2012-17) under which on-the-job, continuous training and professional development and access to office equipment and ICT materials are provided. Enrolment in vocational and technical education as a percentage of secondary enrolment has been slowly increasing over the last decades, while less progress is done in terms of enrolment in upper levels. The government under the Sixth Five Year Plan took the initiate to strengthen the system of vocational education and training (TVET). Formal TVET consist of SSC, HSC, and diploma courses. The TVET program includes a range of courses: time bound, institution based and graded training with formal certification, which are offered by vocational training institutes, polytechnic, commercial institutes, technical training centre and specialized institutes and their governance are overseen by the directorate of technical education and Bangladesh technical education board. However, there remain important challenges resulting from unsatisfactory performance of TVET sector in terms of quality. The relevance of training, circumstanced by the lack of infrastructures, lab/equipment and technical facilities in non-governmental technical institutes as well as lack of adequate resources with the technical education board limits the implementation of goals under the aforementioned policies. While analysing the challenges of human capital development in Bangladesh Islam (2015) concludes that mere expansion of capacity with regards to formal technical and vocational training may not solve the skill gap that exist at the moment, particularly given the fact that degree of capacity utilization in vocational education and training institutions is found to be low (Alamgir 2013, cited in Islam (2015)).

**3.2.1 Madrasa Education**

It has been observed that the enrollment in Madrasa’s at the secondary level has been increasing in the 1990s, particularly female enrollment, with the introduction of female stipend program. Many argue that Madrasa graduates often find it difficult to compete and integrate with the mainstream education affecting their labour market outcomes. The government’s policy focus with regards to Madrasa education in the recent years have been to make the system productive and job-oriented through introducing vocational courses at secondary level in selected Madrasas. The government under the 7th FYP has taken initiatives to invest on infrastructural improvements for non-governmental Madrasas to facilitate learning environment and plans are underway in revising the curriculums at all levels of Madrasa education. The government’s reform agenda also includes capacity building of teachers in the use of ICT and facilitate ICT education for Madrasa students.

**3.3 Higher Education**

Here we briefly review the progress including enrolment and challenges in the higher education sector. While recent evidence have shown that higher return (in terms of increasing trend of wage) from tertiary education (Colclough, Kingdon, and Patrinos 2010; Montenegro and Patrinos 2014), the enrolment rate at tertiary level education is only 14% in Bangladesh (World Bank 2012). At present around 20 percent of government expenditure is devoted on tertiary education (World Bank 2016). The gross enrollment in tertiary education has more than doubled in the recent decade. The female enrollment has also considerably increased in the recent years. It has been observed that compared to the most developed countries the percentage of population having access to higher education is much less in Bangladesh; according to an estimate presently only 4.7% the population aged 18 years and above in Bangladesh has ever accessed any education above grade 12.

Until recently, higher education sector was dominated by the public sector. Last twenty years have seen tremendous growth of private higher education. In response to both social and market demand for higher education, government has allowed private sector to come forward to provide university education. According to BANBEIS (2016), there are now 38 public universities and 92 private universities in Bangladesh providing tertiary education. It is shown in one study that, among those accessing higher education 79% students attend affiliated colleges under the national university. Private universities in the recent years have been absorbing the demand for higher education, which however are the most expensive and have not have not encouraged better access or equity. Recent study (World Bank 2014) projects that by 2030, 65% more students will try to gain admission to tertiary level institutions and suggest the importance of the private sector investment in higher education has to be increased *vis a vis* public sector.

Available studies and policy documents suggest that the key challenges facing higher education in Bangladesh includes access and equity, quality and relevance, financing as well as governance related issues. The rapid increase of private universities, which arguably face rather loose regulation, has become a concern for quality of the degrees they were offering except for a few. Importantly, the recent UGC private university act 2010 requires stronger self- regulation and specifies responsibility of all stakeholders and establishment of accreditation council for academic and instructional standards. The rapid increase of private universities, which arguably face rather loose regulation, has become a concern for quality of the degrees they were offering except for a few. Importantly, the recent UGC private university act 2010 requires stronger self- regulation and specifies responsibility of all stakeholders and establishment of accreditation council for academic and instructional standards.

In Bangladeshi universities, research culture, scholarly atmosphere is somewhat at frustrating level and do not assume any good place in ranking even in South Asian Context. The National Education Policy 2010 of Bangladesh envisions “expanding the horizons of knowledge through creative, multidimensional, original and practical research.” This emphasis on research is a new policy focus and seen crucial to allocate and ensure long-term availability of funds for academia to engage with research and contribute to the global knowledge. Importantly, to facilitate such mechanism focus on research universities is crucial. It is also observed that teachers in higher education institutions do not possess required research or pedagogical training, or qualifications beyond a master’s degree and only a small percentage (4%) possess doctoral level or M.Phil. degrees.

**3.4 Structural reform challenges**

Bangladesh education sector comprises heterogeneous providers that include governmental, non-governmental (non-profit as well as for-profit) institutions. There is diverse curriculum and instructions offered at primary, secondary as well as tertiary levels. In the case of primary, about 54% of total enrolment is in government schools, followed by newly nationalized primary schools (22 percent) and religious schools (6%) and other non-formal schools comprising the rest (APSC 2013). Among the secondary schooling providers roughly two third comprise of secular/no-religious stream, 21 percent religious stream and 5% technical and vocational l education and training (BANBEIS 2011). The higher secondary education comprises the similar streams as the junior and secondary level, in terms of providers. The tertiary level of education in Bangladesh has two broad streams offering Bachelor and Masters level education offered by public sector and private universities and colleges.

The education sector in Bangladesh has a complex governance structure consisting of various overseeing bodies including the Ministry of Primary and Mass Education, Ministry of Education, Ministry of Commerce, Department of Primary Education, Ministry of Social Welfare, Bureau of Non-formal Education, Directorate of Secondary and Higher Education and the University Grants Commission (see SFYP 2015). As of 2005 new ministry was created to give distinct attention to primary education (up-to grade 5). This became a barrier to achieve the goal of universal access to education as well as quality enhancement in schools as such goals rather required an integrated approach focusing on sequencing curriculum, teaching and learning. This resulted in apparent failure of extending universal and compulsory primary education up to grade 8, which was the goal under NEP 2010. The challenges to teaching-learning solution also result from a much centralised system of education in the country, whereby central agencies are involved in each aspect of technical and financial issues related to teaching and learning in hundreds of institutions at the Upazilla level in the country. The regulation and assessment of non-governmental educational institutions are also managed by few central agencies.

The four types of higher education institutions in Bangladesh : a) public and private universities, b) public and private colleges affiliated with the National University, c) colleges affiliated with the Islamic University, and d) various types of professional colleges, institutions and madrasas. The overall responsibility of higher education sector from preparing budget to formulating policies and providing strategic leadership falls on the Ministry of Education (MOE), while the University Grants Commission (UGC) works as the regulating body of both public and private universities. On higher education management issues, a recent world Bank study (World Bank 2014) suggests that the national university under which about 1500 public and private colleges offering higher education require strategic coordination among key stakeholders (such as the ministry of education, national universities, university grants commission, department of secondary and higher education as well as public and private colleges’ representatives) in order to follow multidimensional policy framework. The suggested policy options include; strengthening the system and service delivery, expanding in response to market and future demands, improving governance and management of the college subsector, reforming financing matters, and improving the quality of affiliated colleges.

The Private University Act 2010 under which the private universities are governed, does not provide a common framework for all and there is lack of clarification regarding the role and responsibilities of various officers/bodies within the university governance structure such as that of the university board of trustees, board of governors, syndicate, academic council, chief executive officer, vice chancellor, and of the university administration in general. Under a common framework and rules, both types of universities could effectively function having their own governance structure and management, also emphasized in the 7th Five Year Plan. There is lack of oversight mechanism for universities in Bangladesh such as that of national accreditation council in other countries resulting in huge difficulties in assessing the quality of services rendered by the higher education institutions. For example, India’s UGC established the National Assessment and Accreditation Council in 1994 as an autonomous organization.

* 1. **Ongoing Education Sector Policies[[2]](#footnote-2)**

With the aim to improve quality and capacity several measures initiatives were underway. These include: developing competency based curriculum, revision of text books and introducing creative question paper to assess learning in the terminal exam for grade-five students. On the management side, school based sub-cluster training and subject-based in service training for teachers, Diploma in Education (Dip-Ed) training for primary school teachers, leadership and school management training for head teachers and ICT training for all teachers have been introduced.

Under the government’s National Education Policy (NEP 2010), the government has re-emphasized further improvement in teaching learning process in schools. The latter will be evaluated through national assessments as well as continuous evaluation by teachers, whereby cognitive, effective and skill domains are planned to be evaluated and enhanced. In this context teachers’ incentive including training and development is also re-emphasized. The use of ICT in all schools including audio visual aids, adoption of quality improvement measures in curriculum and pedagogy, common curriculum in government, non-government/private schools and Madrasas, class room based as well as school based assessments, on- the –job training for teachers are emphasized as goals. Early childhood development and pre-primary education to prepare child for primary school as well inclusion based approaches are to be continued through nutrition program, stipend program, school feeding and health check-up programs among other efforts. A third specific goal to improve primary education within the framework of NEP 2010 and under the 7th Five Year Plan is to ensure decentralization of management and enhance effectiveness, giving more autonomy to school movement committees that will increase involvement of local community. The goal also includes bringing greater transparency in governance and financial management.

With the national education policy and national skill development policy, further expansion, diversification and development of technical and vocational education has been planned. This focuses on greater secondary school enrolment in the field of technical and vocational education and training. The government has deigned National Technical and Vocational Qualifications Framework (NTVQF) has been designed to improve the quality and consistency of nationally recognized qualifications. The latter also aim to ensure international recognition of the skills and knowledge of workers. Further, the skills and training enhancement project (STEP) has been implemented to improve the quality of training as well as enhance the employability of trainees. The Seventh Five Year Plan has re-emphasized the implementation of policies under the National Skill Development Plan (NSDP 2011), as a shared vision of government, industry and workers in that the skill development in Bangladesh will be recognized and supported by the government and industry for national and enterprise development, which will empower all to access decent employment and enhance global competitiveness workers through improved knowledge, qualifications and skills. Overall mission is stated as to support rapid and inclusive economic growth (See chapter 11 of SFYP 2015 for detail).

The Skills for Employment Investment Program (SEIP) funded by the Asian Development Bank(ADB 2015), aim to support the government’s reforms in skills development outlined in the National Skills Development Policy (NSDP). The SEIP aims to provide market responsive skills training for both private and public sector at the same time improving job placement and/or self-employment rate substantially. The four stages of training cycle include achieving of targeted enrolment, improving quality training completion, job placement placed of trainee within 6 months of completing training, and ensuring that the trainees stay in the jobs for at least 6 months. It is observed that the current TVET teacher/instructor training programs produce small numbers of graduates with inadequate pedagogical and technical skills. The SEIP will implement a vocational trainer development program for trainers and assessors and a management leadership program for training provider management personnel reflecting NSDP requirements. The NSDP suggest the required changes in TVET system management, pedagogy, and certification and accordingly the SEIP aims to support the engagement of industry and external contractors to manage the delivery of training and develop a network of certified trainers and assessors, including work-based trainers and assessors. The SEIP focuses on ensuring that key staff has the required skills, knowledge, and attitude to deliver quality training and other priorities of the NSDP (see ADB 2015 for detail).

Recognizing the critical importance of tertiary education, the government has developed a long term strategic plan for higher education: 2006-2026 also IDA supported Higher Education Quality Enhancement Project (HEQEP) (2009-2015) is underway, which aimed at improvement of quality of education in universities and strengthening their institutional capacity including the University Grants Commission of Bangladesh. Some of the key recommendations are of the strategic plan include: University sector should be expanded to accommodate the increased demands of high school graduates and emphasis should be given on production of skilled manpower in the selected fields such as agriculture, bio-technology, livestock and fisheries, textile engineering; Public funds should be increased in order to increase access and improve quality while exploring other sources of funds; Accountability and institutional autonomy should be redefined; and Accreditation Council for public and private universities (Source: Strategic Plan for Higher education in Bangladesh 2006-2026, University Grants Commission, Dhaka).

The UGC envisions a gross enrolment rate of 15% in higher education, to be achieved by the year 2026. At an annual growth rate of 7.93%, the total number of projected tertiary students would be 3,496,135 in 2026, which implies tremendous pressure on tertiary institutions in terms of access, which will necessitate the expansion of physical facilities and human resources in the existing higher education institutions and/or the creation of new public and private universities. In order to accommodate tertiary enrolment as per the UGC’s projected rate of 15%, there will be need to expand the number of private as well as public universities; the UGC estimates about 28 universities will be needed by the 2025 requiring huge public investment. Alternatively resources need to be employed on improving and expanding existing higher education institutions, create independent centres of excellence within the existing higher education institutes. Some of the strategies to accommodate wider access to higher education that are suggested : expanding open university (BOU) to provide greater access, allowing private universities to operate distance education programs; granting permission to international universities to open campuses in Bangladesh; and providing facilities for e-learning in higher education, especially through the creation of virtual universities(SFYP 2015).

1. **Challenges of Human Development for 2041**

In Bangladesh, with its journey towards industrialization, it is observed that workers skill are not aligned with the stage of growth and that low level of skills remains a fundamental constraint to future growth prospects. As low skill implies lower productivity, the labour potential is not harnessed to the extent needed to realise the growth potential of economy. For example, shortage of skilled worker and management personnel appears limiting factor harnessing the growth potential of RMG industry. Also inadequate human capital can be constraining to the absorption of 2 million plus labour each year, according to the Seventh Five Year Plan (SFYP 2015). The education profile of labour force (see Table 1) also depicts the inadequacy of needed human capital for further economic transformation.

**Table 1. Distribution of Employment by levels of Education in Bangladesh: 2015-2016**

|  |  |
| --- | --- |
| Levels of education  | Percent of Employment |
| No Education | 32.5 |
| Primary | 25.9 |
| Secondary | 30.1 |
| Higher Secondary | 6.0 |
| Tertiary | 5.3 |
| Others | 0.2 |
| Source: Bangladesh Bureau of Statistics, Labour Force Survey 2015 |

While at the early stages of development basic education may be adequate for many jobs in the economy, however, with the advancement of technology, it is more likely that new set of skills would be necessary for jobs particularly in the manufacturing as well as service sector. Even with changes in demand for skills, the necessity of basic skills and knowledge would not disappear. Importantly returns to learning are expected to increase – both in case of cognitive and non-cognitive skills. It is envisaged, under the perspective plan policy framework, for achieving high and sustained growth to be an upper middle income country by 2031 and high income country by 2046, the total factor productivity would have to grow from the current average of 0.3 to 2.3 during 2021-2031 and 3.6 during 2032-2046(Alamgir 2015). This will require, inter alia, higher investment in human capital. For example, South Korea moved from low-income in 1974 to high income country in early 2000. Korea’s transition to upper middle income country experiences an average labour productivity growth of 4.2 percent which is attributed to the country’s historically high literacy rate(Alamgir 2015). In the next phase of Korea’s transition to higher income country, it was able to maintain stable 2.7 percent total factor productivity through its emphasis on skill development programs, higher allocation in research and development and expansion of tertiary education. In Korea labour productivity increased substantially over the period- its transition to higher income country (Alamgir 2015).

Figure 1. Enrolment in Tertiary Education for Different Groups of Countries

Source: World Development Indicators (2016)

One important focus thus would be the tertiary education both in terms of quality and quality. The enrolment in tertiary education has not been increasing or at the level of global proportion, particularly if we look at the level of higher and middle income countries. Indeed it has been lower to South Asian average in the recent decades (See Figure 1). The relevance of higher education in Bangladesh suffers from the limited options of studying science and engineering and subjects that have market demand. This is substantiated by the fact that the highest level of unemployment (9%) is among the higher (tertiary) educated people (Bangladesh Labour Force Survey 2015-16). This also creates supply-demand mismatch or skill gap. There is also lack of systematic studies that will inform education policy makers about the job market relevance of the higher education in Bangladesh.

Thus the important question would then is what kind of targets in the area of human capital would commensurate with future growth prospect of the country? Following the approach taken in Islam (2015), we attempt to provide some indicative scenario based on international experiences. The basis of the exercise is to address whether Bangladesh can aim to achieve certain level of human capital that that other middle/higher income countries experienced at the similar stage of development. We particularly compare the situation with Malaysia and Thailand when providing such scenario.

**Table 2. Some Indicative Targets for Education and Skill development for Bangladesh[[3]](#footnote-3)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2015-16 | Possible Target for 2030\*\* | Possible Target for 2040\*\*\* |
| % of labour force with |   |   |   |
| Basic education | 34.90 | 46.70 | 61.30 |
| Intermediate education | 28.40 | 53.90 | 63.70 |
| Advanced education | 52.90 | 65.40 | 83.70 |
| **Enrolment in education at** |  |  |  |
| Primary level | 120.43 | 101.79 | 102.73 |
| Secondary level | 63.52 | 77.57 | 129.00 |
| Tertiary level | 13.44\* | 26.07 | 48.86 |
| Vocational education as percentage of secondary  | 4.13 | 11.16 | 10.14 |

Source: World Development Indicators (2016)

Notes: \* 2014 data; \*\* indicates that these levels prevailing in Malaysia in 2015;

\*\*\* indicates that these levels prevailing in Thailand in 2015.

Bangladesh has witnessed structural transformation in terms of sectoral shares of GDP implying structural changes in employment should follow. Thus equipping the labour force with the kind of education and skills commensurate with structural transformation in the economy will be crucial for achieving further advancement of the economy. The transformation that the now- industrialized countries experienced has been accompanied by a shift to more skill intensive jobs. Countries which were at the same level of development had also undergone shift in labour force from manual jobs to skill intensive non-manual jobs and from traditional type to modern jobs that would require basic to improved skills in order to perform non-routine tasks than routine tasks, whereby workers will be doing day to day problem solving tasks than routine tasks. For example, Korea, Malaysia and Thailand saw the share of white collar workers rising over time; the fraction of professional and technical workers in the labour force has been on the rise during the period 1971-2008 in these countries (VDR 2014). These occupations include mechanical, civil and other engineers, chemists, doctors, technicians in IT and science and accountants. Similar increases were also seen in the fraction of clerical workers such as receptionists and librarians. In the manufacturing sector of these countries major dominance are of white and blue collar workers in the East Asian countries. The skill-biased occupational transition that has taken place in south-east Asian and East Asian advanced countries suggest the demand for analytical and interpersonal skills has been growing with demand for manual skills declining. It is observed that analytical and interpersonal skills are highly valued. Jobs that are likely to grow in the future in the technical and professional occupations will require workers to have more advanced skills. Jobs in agriculture sector or technical occupations require more routine and manual work for which basic education and skill may be sufficient. But the jobs in the future will involve performing complex problem solving tasks requiring workers to possess problem solving and analytical skills. Furthermore, there will be need for strong interpersonal and behavioral skills as the workers will be in need of working in team and in supervising role.

The important challenges then is to what extent the education system could equip the workforce with such skills those will be in high demand or highly valued in the longer term. The skill development strategy commensurate with the economy’s structural transformation should then be holistic and should be focused from early years through early child hood development to job-related skills development with a connected education system. The formation of cognitive skills starts from the early years of life that continues through adolescence. Behavioral skills are formed in childhood first and then continue to evolve through adult life. Importantly, the cognitive and behavioral skills help workers to update their technical skills continuously. With the advancement in production technology and use *vis a vis* modernization of the economy workers will need to catch up with their skills. The implication on education and skill development system of the country is very important in making that connection between what is demanded and supplied in terms of human resources for the economy.

1. **Education and Skill Development: International evidence**

Here we discuss some international experience to understand the importance of government policies towards educational reforms and skill development responding to the pattern of structural transformation of the economy. The Asian experience is noteworthy in this context. For example, some countries in Asia grew substantially faster than Bangladesh over the last forty years or so to achieve the status of middle income (China and Malaysia) and high income (Korea) countries. One important common feature regarding the transformation of these three countries is that of higher investment in human capital, additional to their emphasis on capital accumulation; all of them focused on human capital investment in terms of generally large spending on education and emphasis on skill development and with expanding economy greater emphasis on tertiary and advanced education (Islam 2015). Bangladesh will need prioritise skill training in line with the strategies followed by these countries.

The experience Korea is pertinent as its human resource development strategies are in line with its industrialization and economic development policies.[[4]](#footnote-4) Korean education and skill development reform has progressed with various stages of development, historically, which has placed it highly in OECD program for international student achievement (PISA) and high enrolment rates at all level of education. In the early years of re-building and industrialization efforts (1945-1960), Korea focused on enforcing universal primary education and reconstruction of educational infrastructure. It may be noted that more than half of the population aged 13 and above were illiterate during the proclamation of the Republic of Korea in 1948. Korea established six years of elementary education, three years of middle school, three years of high school and four years of higher education, popularly known as 6-3-3-4 school system, which introduces multiple pathways to tertiary education. During this period, importantly, primary school teachers qualification requirement were revised requiring four years teachers’ college graduates in place of upper secondary school diploma. This means the major policy concern in this period was access to education with the goal of compulsory primary education. During the next decades (1961-1980), when Korea was experiencing strong economic growth with structural transformation with a shift of employment from agriculture to capital-intensive industrialization, the focus remained ‘education for economic growth.’ The major policy goal became universal secondary education with greater emphasis on supplying technical manpower through enhancing technical and vocational training. That is the government further expanded primary enrolment and vocational high-schools with science and technology education. Expanded primary enrolment increased competition among students for places in secondary schools, the result of which is the introduction of automatic grade promotion in 1969 and abolishment of entrance examination for secondary schools in 1974. The major policy concern in this period was thus enhancing quality-efficiency and control. The government resorted to medium and long term planning and creation of local funds and reliance in foreign loans to support TVET. In the following decade 1981-2000, the government focused on educational development through decentralization of education management facilitating local greater local autonomy with accountability. In this period the policy goal shifted to universal tertiary education, greater focus on quality and reform in vocational training and thus the major concern remain quality, autonomy and accountability. This period saw various reform measures, accordingly. The reforms focused on addressing unequal access to education resulting from widening income gap. The demand for tertiary education increased in this period. The education reform aimed to stop private tutoring while also exempting students from competitive exam for tertiary enrolments as well as relaxed control over universities regarding enrolment in 1995. The reform provided greater emphasis on learner-centred education, diversification of educational programs, autonomy and accountability of school operations and also allowed “open access to results of school education evaluation.”

In the 2000s Korean educational development focus was on restructuring the education system and policies was aimed at life-long learning, human resource development, improving quality of public schools, supporting research, regional development and human resources development particularly in the context of tertiary education. The resources are devoted to education and financial support for tertiary education with major policy concern remaining global competitiveness and a knowledge based society. The policies mainly responded to the challenges in supporting the nation’s competitiveness in the global market as well as meeting the human resource development need. Thus the priority remained reforming higher education in a way that enhances its relevance and the international competitiveness of Korean universities and at the same time strengthening vocational education and training so as to reduce over reliance on tertiary education. In addition the life-long learning has been considered as the integral part of the education system. With the country’s move towards heavy and –chemical industries that created demand for higher skills (as the existing vocational school that the government initiated in the 1960s were not in a position to meet the changing demand), the government respondent by focusing on strengthening technical and vocational education as well as increasing the numbers of public vocational training institutes together with a policy of allowing certain private enterprises to offer on-site training under a legal obligatory [cite] framework. Korean government restructured five-year junior technical college education (comprising three years of secondary and two years of post-secondary schooling) into two-year vocational colleges in order to produce technical skills (technicians and engineers) needed for its heavy and chemical industries. In 1908s Korea faced skill worker shortage in industries resulting from decline in vocational secondary schools enrolment due to expanded higher education opportunities. In response to this, the government took further measures to strengthen vocational education and training with the goal to increase vocational school enrolment and ratio of general education school enrolment to vocational senior secondary schools from 68:32 to 50:50 by 1995. Korean government also initiated further reforms in the vocational and training system in the 1990s, while also emphasized on-the-job skill upgradation.

Malaysia attained rapid economic growth experiencing significant structural changes since the 1980s. Like the case of Korea, Malaysian government took initiatives to expand post-secondary education and vocational education and training. If we look at the composition of labour force by educational attainment, there has been notable shift from primary to secondary and tertiary level in Malaysia (Islam 2015. About 25% (55%) of the labour force had tertiary (secondary) education in 2010 compared to roughly 6 % (36%) in 1982(data cited in Islam, 2015). Interestingly, there has been also supply –demand mismatch of graduates (or skill mismatch) in Malaysia; Fleming and Soborg 2012 report that 50% of the graduates in 2006 and 2007 found it difficult to find employment and 28 percent remained unemployed over a year of graduation, and the similar percentage needed further skill training suitable to find employment. It has been argued that such problem related to skill mismatch could act as hindrance to the country’s transformation to advanced industrialized nation – transformation from middle income to higher income status. This phenomenon is recognized as the “middle income trap” by the country’s national economic advisory council (NEAC 2010), which emphasized the need for paradigm shift in education towards producing higher level skills needed for an advanced economy. The NEAC 2010 also emphasized on the importance of skill upgrading with continuing education and training and industry and government partnership for skill training of the type demanded by the former.

Another pertinent example is Taiwan, whereby education and training system seen reforms together with various stages of development that the country embarked on. While the initial phase of industrialisation benefited from a literate workforce, the government responded to the changing demand for skills resulting from industrialisation efforts by making secondary education compulsory in place of compulsory primary education. As cited in Ranis (1995), total expenditure in education as a percentage of GNP was increased from 2.1 percent to 4.6 percent from 1955 to 1970. In case of Taiwan, with the rising share of workers in manufacturing/industrial sector, vocational training increased six-fold during 1966 to 1974 and the students in vocational track increased from 40 percent in 1963 to 52 percent in 1972 and almost 70 percent in 1980(Ranis 1995), which again demonstrates clear policy focus on education commensurate with skill need of the economy.

1. **Reforming Higher Education: International Evidence**

In an increasingly globalised and interdependent world, higher education is crucial for achieving economic progress. This is also extremely important for building institutions that is needed to sustain the progress a nation would make. The scientific and technological advancement globally has also created opportunities to view higher education as global learning platform. Adequate number of higher educational and research institutions as well as globally competitive educated and skilled people are a prerequisite to build sustainable societies. The most advanced economies in the world are knowledge based, whereby competitive use of knowledge and innovations create comparative advantage for these countries. Therefore for countries like Bangladesh, it is imperative to raise higher level skills through creating opportunities for globally competitive education and research facilities. Bangladesh can learn from the experience of East Asian countries such as Singapore and Malaysia with regards to reform in higher education and learning. Here we discuss the experience of these countries with respect to higher education reforms and achievements. For example Singapore and Malaysia, in an effort to enhance global competitiveness of higher education have allowed joint degree programs with world renowned universities as well as granting permission to foreign universities to set up their campuses to facilitate world class educational opportunities for their students. Singapore has increased its allocation on research and development (of total education expenditure) from 34% in 2000 to 54% in 2009. With the aim to establish world class higher education system, Singapore government set up an international academic advisory panel drawing on individuals from renowned scholars, global higher education specialists, as well as corporate leaders (Ministry of Education Singapore, 2001). The universities in Singapore have been assigned to achieve defined goals: “provide top level professionals managers, planners, and researchers; raise the intellectual tune of society, acting as a bench mark in maintaining higher education, creating wealth” (UNESCO, 2006). The Singapore education reform promoting competition with publicly funded universities saw the establishment of top class private universities such as the Singapore Management University, which was established in collaboration with the Wharton Business School at the University of Pennsylvania (Lee and Gopinathan 2001). The Singapore government had launched its Global Schoolhouse initiatives in 2002 and has taken efforts by its Economic Development Board instead of its MOE, to strategically invite world-class and reputable universities from abroad to set up their campuses in Singapore (MOK, 2011). This initiatives became very successful in that leading foreign educational such as the European’ Administration des Affaires (INSEAD)( in 2000), the University of Chicago Booth School of Business (in 2000), S.P. Jain Center of Management (in 2006), the New York University’s Tisch School of the Arts (2007), and DigiPen Institute of Technology (in 2008) offering tertiary education in areas such as business, management arts, media, hospitality to information technology, biomedical sciences, and engineering(MOK 2011; cited in Mohsin and Kamal 2012). Singaporean universities are collaborating with universities across the world to offer high quality diversified academic programs, whereby students are given the opportunity to study at both local and foreign campuses, as well as receive supervision and teaching of faculties from both universities. For example, the Singapore-MIT Alliance (SMA), an innovative engineering education and research enterprise jointly founded by the National University of Singapore US, the NTU, and MIT (USA), which since 1998 have developed five graduate degree programs, and has created distant/open learning environment with the use of technology(Mohsin and Kamal 2012).

Malaysian government has taken longer term vision to make its higher education institutions responding to the global challenges in international higher education which included: widening access and quality, improving the quality of teaching and learning, enhancing research and innovation, strengthening institution of higher education, and life-long learning, and finally reinforcing the higher education delivery system (Malaysian Higher Education Strategic plan, 2020). Noteworthy MyBrain15 initiative taken by the Malaysian government is a financing scheme under the Ministry of Higher Education (MOHE) aiming to expand its globally competitive human capital for enhancing research, development and innovation by 2020 (OECD, 2011; cited in Mohsin and Kamal 2012). The Malaysian government have also facilitated setting up of branch campuses of UK and Australian universities to encourage twinning program where students can study in both local and overseas campuses to complete their degrees (Goi and Goi, 2009; MOK, 2011).

* 1. **Global Transformation in Higher Education**

A new educational paradigm has been created with the advancement of technology and growth of internet. The latter has transformed open learning environment offering innovation in development of knowledge, its dissemination as well as utilization in case of teaching and learning as well as research. The OER originates from higher education institutes that include textbook, reading materials, any learning contents; simulations, games, other learning applications; syllabi, quizzes and assessment tools or any other materials suitable for educational purposes. The famous OER initiatives around the world are, according to Watters(2010), open education consortium, MIT open courseware, Khan Academy, PSPU, Open Study, Nitxy, OER glue, iUniv, OCWSearch, smartshistory, CK-12, Flat World Knowledge and Connexions- these platforms could cover diverse group of learners offering excellence in teaching and learning.

It is apprehended by many that traditional universities (relying on class-room based system) may become obsolete by the advancement of information technology and technology based distance education. There has been huge disconnect till date between use of ICT based education and quality enhancement. Internationally development in science and technology have had huge impact on education sector with an overall paradigm shift in higher education (Rena 2010);this implies shifts from national to global education, state sponsored to open market system, general education to market driven education , and from teachers’ to learners’ centred education. All these pose greater challenges for an education system that would rely on old practices to expand education without much focusing on quality without recognising the internationalisation and setting out priorities.

Higher education system worldwide has embraced MOOC to facilitate open learning achieving excellence in overall higher education system, which allows a massive amount of learners to learn on an open and on-line learning environment (Gover et al., 2013). For example, India has launched an India specific MOOC platform known as *Swayam* that promotes self-learning by offering top quality online courses in number of Indian languages. The national knowledge commission recommend addressing the paucity of high quality teachers, inadequate infrastructure of the universities particularly libraries, quality of educational resources offered in educational institution by facilitating more open access (OA) and Open educational resources (OER).

Malaysian government for example outlines a blue print (2013-2025) for achieving excellence in higher education system in the country (see Nordin et al 2015 for detail). These include creating 1) holistic, entrepreneurial and balance graduates, talent excellence, nation of life-long learning, quality TVET graduate, financial sustainability, empowered governance, innovation ecosystem, global prominence, globalized on-line learning and transformed higher education delivery. The Malaysian government has initiated and developed Malaysia MOOC in collaboration with selected local public universities. The government has developed national e-learning policy, which are subject to revision every three /five years, focusing on infrastructure and infostructure, governance, pedagogy online, e-content, professional development and enculturation. The internet penetration level in Malaysia (67%) supports to harness the potential of on-line learning. The global on-line learning initiative of the Malaysian government includes launching of MOOCs in distinctive subjects in partnership with to quality international MOOC consortiums such as EdX and Coursera in order to build the country’s global brand (Nordin et al. 2015). Japanese traditional universities started open courseware consortium (JOCW) in 2005 and its OER movements were led by a network of private universities. Japanese top class universities started MOOC projects in collaboration with international consortium such as Coursera and edX and initiated JMOOC (Yamada 2015).

Chinese government promulgated policies towards education digitization (e.g. 10 year Education Digitization Development Plan 2011-2020, which outline that education cloud network, training information technology talents and building information management system.[[5]](#footnote-5) In July 2012, MOE issued the Twelfth Five Year Plan of national education development and proposed the realisation of education modernisation and building of a learning society by the year 2020 by entering the ranks of powerful countries rich in human resources- thus promoting on-line education development. In 2014 Chinese state council decided to accelerate the development of vocational education – a world class vocational education system with Chinese characteristics shall be developed for the adaptation of development needs, the deep integration of industry with teaching, the connection between secondary and tertiary vocational education and the intercommunication of vocational and regular education embodying the concept of life long education. In 2013 the state council issued the broad band China strategy and implementation scheme to strengthen strategic guidance, systematic development and the fast and sound development of broad bank infrastructure in China- the kind of policy support that is expected ultimately to enrich online education

**6.3 Emphasis on Research Universities**

Research universities are considered as academic institutions “committed to the creation and dissemination of knowledge, in a range of disciplines and fields, and featuring the appropriate laboratories, libraries, and other infrastructures that permit teaching and research at the highest possible level.” Importantly, synergies of research and teaching are the “trademark "of research universities and hence understanding the characteristics of the research university and building the infrastructures and the intellectual environment is important. The key to research universities – “communications and networks, journals, libraries, communities of scholars, conferences and professional organizations, the internet, repositories of knowledge, etc.” Research universities are crucial for “differentiated and effective academic systems”, that facilitates a country’s entry to “global knowledge society” and are “key to the knowledge economy.” For example, the Malaysian government has given four public universities the status of Research University and emphasizes overall internationalization of these universities. These include: University of Malaya, USM, UPM, and UKM (cited in Mohsin and Kamal 2012). These countries also allowed corporatization of public higher education institutes for greater sustainability. For example the oldest university in Malaysia, University of Malay, was incorporated along with eight other public universities allowing them to generate resources through possible mechanisms (Lee 1999; cited in Mohsin and Kamal 2012).

Asian countries also bring reform in higher education sector such ‘Multi-Media Super Corridor (MSC)’ in Malaysia, Cyberservice corridor in Philippines (PCC) for moving towards knowledge-based societies (Symaco 2012). More recently, Korean higher education reform focused on enhancing relevance of education and international competitiveness of its universities. The research support project ‘Brain Korea 21’ was initiated to support research oriented graduate programs in selected universities. The ‘New University for Regional Innovation’ project was initiated to support universities in their efforts for HRD for regional community development.[[6]](#footnote-6) In many developing countries reforms are underway to make universities research based institutions emphasizing the crucial role of research for the advancement of the economy and creating knowledge-based societies. In this context, universities in countries like Bangladesh to enhance both quantity and quality of their research output

1. **Addressing the challenges of Education, Skill and Human Development for 2041**

A major trend observed in the education system of ASEAN countries is that ‘building on progress in basic education, strengthening of other levels of education including vocational and higher education is crucial to have a well‐educated and skilled population. Also as the country in transition appropriate transferable skills and competencies are critical to the next level of development by increasing its knowledge‐based sectors (VDR 2014). While Bangladesh’s context may differ in many areas with regards to institutional and policy contexts, some important reforms and trends observed in these countries might still be relevant for strengthening its education system towards the vision 2041. As described in VDR(2014), these are 1) *On achieving universal primary education, expansion of compulsory education to include at least lower secondary education;* 2) *Shift to more decentralized education management, which*  includes transference of some of the key education responsibilities (e.g., teacher management, curriculum development, and financing) to lower levels of administration. *3)* *Considerable private expenditure on education, including shadow education,* 4) *Financing is important, but not the only factor behind educational performance:* Government expenditure on education varies significantly across countries. While high performing systems appear to spend more on education as a percentage of GNP, there appear sound policies concerning teacher quality and remuneration, the frequency of curriculum updates/reform, quality assurance systems, quantity and quality of teaching and learning time and language of instruction determining the success. 5) *Larger class size with teachers teaching less hours in high‐performing countries 6)Curriculum reforms promoting non‐cognitive and higher‐order skills, as much as academic contents 7) Improving teacher performance through result‐based evaluation for teachers;* One particular trend involves linking teacher salaries to performance vis‐à‐vis predetermined standards.

Bangladesh has witnessed structural transformation in terms of sectoral shares of GDP implying that structural changes in employment should follow. Thus equipping the labour force with the kind of education and skills commensurate with structural transformation in the economy will be crucial for achieving further advancement of the economy. Countries which were at the same level of development also undergone shift in labour force from manual jobs to skill intensive non-manual jobs and from traditional type to modern jobs that would require basic to improved skills in order to perform non-routine tasks than routine tasks, whereby workers will be doing day to day problem solving tasks than routine tasks.

The Korean example is pertinent here. Korea gradually improved its education system making it responsive to economic development providing an interesting example of how a growing economy could achieve national education success both in terms of quantitative expansion and qualitative improvement without any trade-off between the quantity and quality and universal access to all, while contributing to economic development (Jones, 2013). The average years of schooling in Korea gradually increased from 5.7 years in 1970 to 9.5 years in 1991 and 10.6 years in 2001, commensurate with economic progress. During the same period high school graduate entering higher education has increased from 26.9 percent in 1970 to 33.2 percent in 1991 and 70.5 percent in 2001(Song 2003). Some strong features of the Korean education system,[[7]](#footnote-7) which might be relevant for policy making in Bangladesh, are: *(1) Well trained and well paid teachers can be driving force for improved quality of education; Korean teachers are significantly better paid, in terms of average salary to per capita GDP ratio, compared to their peers elsewhere in OECD. (2). Automatic promotion and singular track education system ensured almost universal enrolment in tertiary education, which also ensured that all secondary school graduates, whether from an academic or vocational school equally qualify for university admission. (3) Shift away from rote memorization to knowledge based education steered students critical thinking and problem solving skills resulting higher student achievements in PISA. (4) Korean education system is highly and efficiently funded.*

***7.1 Cognitive and behavioural foundation in general education***

To begin with addressing the future concern, one important intervention would be to focus on developing cognitive and behavioural foundation in general education system. This will require balancing literacy and numeracy skills with advanced skills such as problem solving and critical thinking. Basic cognitive skills are referred numeracy and literacy skills. Higher cognitive skills refer the ability to understand complex ideas, learn from experience and use if logical, intuitive as well as critical thinking, and problem solving using logical process by way of acquired knowledge. Social and behavioural skill, defined as soft skills include personality traits, social skills. These also include openness to experience, conscientiousness, extraversion, agreeability, emotional and self -control to decision-making skills. The contradiction between available findings on cognitive ability of primary school completers and the nation-wide examination results are indicative of the fact that primary school curriculum and or pedagogy may not equip children with cognitive skills that allows one to transfer formal knowledge into unfamiliar settings. Importantly, reform has to be built on the system’s strength. General education system should focus on nurturing the above cognitive, behavioural and social skills. Technical skills that involve manual dexterity, application of methods, materials or instruments – are developed through vocational schooling and training, job or occupation specific on –the-job training (Pierre et al. 2014)

The emphasis has to be shifted so that more can acquire the cognitive and behavioural skills that would be needed for becoming successful in the labour market. The latter may require more schooling for all, expanding access to secondary education and more importantly a teaching and assessment method that will enhance the development of such skills. In this context for example, individualized self- learning approach that teaches at the right level has shown promise in many countries including Bangladesh (see Sawada et al. 2017). It is important that drop-outs from schools are substantially reduced and the progression from primary to slower secondary to higher secondary to post-secondary are increased. The latter may require extra-hour of tuition which may not be currently at the desirable level comrade to other countries. The extra-hour of tuition has shown promise in reducing drop-outs or increasing enrolments in Bangladesh (Rutbah et al. 2016). However, what is most important is to provide quality teaching and learning environment to foster cognitive ability. Schooling through general education should balance competency as well as content based learning that will stimulate creative and critical thing among primary and secondary schools goers.

In this context, we can learn from the experience of Singapore and Korea- these two countries exemplified as successful education system had adopted curriculum and student assessment system, which promote knowledge acquisition as well as active learning and critical thinking in schools (cited in VDR 2014). For example, Vietnam also undergoing modernization its school curriculum system and redesigning general education system defining students’ essential competencies that will form the basis of educational objectives, standards, learning content, teaching method and assessment(VDR 2014). In an effort to reform its school curriculum modernization, beyond textbook reform only, Vietnam undertook a model replicating what was taken in Columbia, which is called Esculea Nueva that features group learning and problem solving rather than memorisation and copying that is often seen in many places; Vietnam has piloted its version of Esculea Nuvea in 1500 schools and the government intend to expand the pilot in lower secondary schools (VDR 2014).

**7.2 Addressing Learning Crisis**

The benefits an individual would derive from education largely depend on learning implying that schooling without learning can be wasted opportunity. Education or schooling should provide with skills needed to sustain life activities. It is extremely important that students learn how to interpret many types of written passages, understand how numbers work and be able to use higher-order reasoning and creativity that building on these foundational skills. Importantly they should be able to acquire socio-emotional skills such as perseverance for success and interpersonal communication to the ability to work on teams.

***Early childhood development***

Early childhood development assumes crucial importance for future human development. The family environments of young children are major predictors of cognitive and non-cognitive abilities as well as other child outcomes and that ability gaps between advantaged and disadvantaged open up early years of lives of children (Heckman 2008). Studies focusing on early childhood education conclude that such interventions can have positive impacts on cognitive skills and test outcomes during the later stages of schooling and can also have longer term later life success including labour market outcomes. Rabbani (2016) discusses some of the smarter goals for education sector in Bangladesh, those particularly focuses on early childhood development through psycho-social stimulation. Drawing from a study in Jamaica, which provided a “two-year stimulation intervention” to stunted children, who lagged behind in learning and productivity and that resulted in about 20 years almost equal labour market outcomes in terms of wage and earning level for these treated and their non-stunted (stunted control) cohorts; stunted children not covered by such program 20 years earlier, earned 25% less (Rabbani 2016). Rabbani (2016) suggests, when translated to Bangladesh, benefit of such program (one social worker for one hour per week per child) would out-weight the cost at a ratio of 18:1.

***Remedial prevention approaches***

Remedial programs can help young children at risk in the formal education system to prepare themselves for further academic education or training (World Bank 2018). The most promising remedial prevention approaches include: 1) supporting primary and secondary students willing to stay in school and master foundational skills: in India, offering additional instruction for disadvantaged students have shown positive impacts on foundational skills; 2) offering students with early assessments of their academic standing, along with extra instruction to improve performance. For example, early assessment program in California for academically at-risk students shows declining needs for remediation at later stages of education and training; 3) providing secondary school students the option of registering concurrently in postsecondary courses: in USA it was found that those student are were less likely to require remediation and more likely to persist in tertiary education and improve academic outcomes.

***Making teaching more effective:***

For effective teaching teachers’ skill and motivation is crucial. For this education system need to attract qualified people in teaching and provide a solid foundation of subject knowledge and pedagogy before they start teaching, without which teachers will find them in the class room less equipped to teach effectively with only theoretical knowledge. Education system need effective mechanism to mentor, support and motivate teachers- without motivation of teachers their skills may not translate to student learning.

***All for learning approach***

Focusing on improving learning outcome can bring great progress in achieving the goals of education and building skilled human resources. The case of republic Korea is a great example that achieved universal enrolment in high quality education through secondary schools in 45 years from very low level of literacy in 1945; Korean students perform at the highest level in international learning assessments (World Bank 2018). Another example is Vietnam, which as a lower-middle income country, demonstrated comparable performance in student (15 years old students) learning assessment tests to that of Germany (VDR 2014). As reported, during 2009 to 2015, Peru achieved some of the fastest growth in overall learning outcomes following policy action (VDR 2014). Recently, Malaysia and Tanzania launched promising society wide collaborative approaches to systematically improving learning (World Bank 2018). For a successful approach to addressing learning crisis and achieving the promise of education, a “clear-eyed diagnosis followed by concerned action’ will be needed. The WDR 2018, drawing evidences, discusses how change might be possible with commitment to “all for learning.” The three complimentary strategies to achieve “all for learning” would entail “1) Assess learning—to make it a serious goal. Measure and track learning better; use the results to guide action. 2) Act on evidence—to make schools work for all learners. Use evidence to guide innovation and practice. 3) Align actors—to make the whole system work for learning. Tackle the technical and political barriers to learning at scale.”

***Stakeholder Mobilization***

One important strategy to improve learning is that of ‘mobilizing everyone who has a stake in learning. Many countries have used wide-ranging consultations with all potential stakeholders in policy reforms and implementation. For example, Malaysia used a “lab” model to bring all stakeholders and involve them in all stages of reform, from design to implementation. Citizen mobilization though information and communication is also seen an important strategy. For example, in Peru, the government policy makers used information on poor learning outcomes and performance of the education system to mobilize public support for reforms to strengthen teacher accountability, which also was able to buy-in business support for funding a campaign highlighting the importance of quality education for economic growth. WDR suggest modernization of vocational training will help employers and at the same time could buy their support for broader educational reform.

The participation of the private sector can help the education-labour linkage by providing more market-oriented skill training, while reducing the government’s fiscal burden in education spending. In some countries, the sector has provided technical training courses along with nationally recognized licenses to trainees and has also directly placed them in employment. The Republic of Korea, for example, has established a qualifications act, which allows the national technical qualifications system set up by the Government to be supplemented by certification of qualifications issued by the private sector. In turn, private sector involvement in vocational education and training is assisted by the policy that supports industry level training through the Employment Insurance Scheme (EIS) administered by the Ministry of Labour. The EIS supports training and re-training of workers through a tax on firm level wages.

**7.3 Technical and Vocational Education and Training**

Globalization and the advancement of information technology will require human-centred development paradigm, whereby in knowledge –based information society, knowledge and expertise will be crucial for competitiveness of individuals, companies, and countries. In order to adapt to such rapidly changing economic environment and competition, the efficient development and use of human resources will foster country’s economic development. This will necessitate the development of technically skilled workers who will propel the engine of growth. For example, Korea drew global attention for its spectacular economic growth, while many observed that it was possible since the country focused from the 1960s developing technical personnel through vocational training. Korea’s vocational education and training system provided the workers needed by the industrial sector to contribute to economic growth. [[8]](#footnote-8)

In this context vocational education and vocational training need to be differentiated as both can be pursued with different policy focus, as was in the case of Korea’s industrialization efforts. Vocational education refers to long-term courses in which students gain basic competencies towards becoming technical personnel, whereas vocational is training provided to enhance workers’ employment prospects. The vocational education is provided at vocational high schools and colleges under the Ministry of Education, while the vocational training is provided under the responsibility of the Ministry of Labour. The vocational education in Korea evolve with its focus and promotion of industrialization, with the full scale promotion of vocational education in the 1960s when a structural transformation a way from agricultural to a manufacturing economy, and an export drive was underway. The changes in vocational training policies and facilities were also in correspondence with the country’s industrialization and growth stages, which are defined in four major stages , stage 1( 1945-60)- post war rebuilding and founding stage, stage 2( 1961-1981)- export oriented industrialization and rapid growth , stage 3(1982-97) – economic restructuring , stage 4(1998- ) – knowledge based economy and vocational training paradigm( see Appendix). While vocational education in Korea in the 1960s and 1970s focused on the training of skilled workers, education efforts in the 1980s aimed to produce technicians required for the upgradation of the economy as well as national competitiveness. The major vocational education policies in this period included the strengthening of science and technical education, the consolidation of vocational high school education, and the revitalization of vocational education within higher education.[[9]](#footnote-9) More recently in order to address industry demand, the Korean government encourages innovation in VET offering customized employment-linked vocational training programs (Park 2011). The reform allowed private sector engagement and collaboration among various ministries to address skill mismatch affecting VET graduates.

**7.4. ICT use in Education and Education Informatization**

For a knowledge-based economy the application of information and communication technology is crucial.[[10]](#footnote-10) That is ICT use in education is of central importance for building an education system for a knowledge society. ICT use in education produces education resources and information and sustains student-oriented learning and education opportunity. The informatization has essentially led to a network society – enhancing participation, cooperation, and sharing. The informatization has resulted in education models such as learner-teacher models, group models, self-guided learning, for example. The informatization has created prospects for home schooling and a new education system that “blurs the boundaries between online and offline, reality and cyber-world,” and has stimulated the creation of a new education institutions such as cyber Universities.

Facilitating the computer use and computer training programs in schools is a first step for ICT use in education and thus creating information society. The use of computer not only facilitate lessons to students but also can develop and process school governing tasks including automation of grades and school schedules and time tables. Gradually computer education can become part of regular education. The challenge will be to facilitate higher order thinking skills or increasing global competitiveness in the future. In this context Korean experience is worth revisiting as Korea received international recognition of its education informatization which focused on nurturing computer literate teachers and students’ basic computer knowledge.

For example, Korea followed an education informatization process in three phases namely computer introduction phase, automation phase and informatization phase (see Table 3). The government’s ‘Master Plan for Education Reform’ emphasized introduction of computers to improve teaching methods at elementary and secondary schools, promote science and technology education, and prepare for an information society. Korean national policy on education informatization began with the ‘Measures to Strengthen Computer Education in Schools’ followed by and three ‘Master Plans on ICT Use in Education’ as well as supplementary plans were created to supplement the master plan. The measures included provision of computer education opportunities, development of computer based learning method and computerization of school operations. Eventually computer education became a part of regular education resulting from the Government’s National Computer Network Project, education reforms, growth of computer industry, increased social demand and global focus on computer education.

**Table3. Education Informatization in Korea**

|  |  |  |
| --- | --- | --- |
| **Computer introduction phase** | **Automation phase** | **Informatization phase** |
| * *Creating specialists demanded by society*
* *Focused on university and industrial training education following progress in the information industry*
* *Began computer education at elementary, middle, high school level as after-school classes •Automated tasks on*

*individual school base* | * *Began computer education as part of regular curriculum*
* *Provided computer literacy training and how to use ICT in education*
* *Aimed for more computers, education , schoolteachers training*
* *Promoted LAN, C/S-based automation of school tasks*
 | * *Implemented ICT to improve education System*
* *Promoted general ICT education to facilitate quality education and access to education*
* *Emphasized school teachers and student participation of education resources, information sharing, joint-production*
* *Emphasized on education informatization based on intranet, Internet, web*
 |

Source: Adapted from “Understanding Korean Educational Policy Vol. 6, Informatization of Education: ICT Use in Education, Korean Development Institute.

Learning from Korea’s experience, where computer education was considered an integral part of school education from the beginning of its industrialization process, following factors are important in realizing ICT use in education: Firstly, the government must have a development plan for an information industry or society informatization. This is important as growing demands for school informatization equipment or networking solutions, specialists, could not be effectively meet without such plan. Secondly, for the former, a clear objective for ICT use in education is needed. Korean example shows that the country underwent phases of computer specialist training, computer education universalization, and, finally, ICT use in education, whereby it’s economic, industrial, and socio-cultural factors was at play. This means country’s context is important in setting out objectives and plans for education informatization. Moreover, the necessary manpower to handle the responsibility of computer education or ICT use in education has to be ensured and education informatization needs to be consistent with education curriculum or demand driven. Government also need to ascertain funding /financing issues secure capital for education informatization as well as make prior evaluation of social and overhead capital such as electricity and communication network availability as foundation for education informatization.

***7.2 Reforming higher education to embracing global transformation***

The development of MOOC facilitate the universalization of university education though expansion of learning access and quality. These courses are conducted online for thousands of students worldwide without restrictions. The new global learning practice created opportunities to utilize the potential of ICT in pedagogy. MOOC initiatives provide global platform for extending the reach of educational institutions and providing universal access to quality education. It facilitates innovation in teaching and research and international collaboration. Virtual learning contexts, transnational learning platforms, global citizenship have become priority following subject specific learning across the world. For example, the national Knowledge commission in India emphasizes the use of OER in order to enhance the availability of high quality educational resources and improve quality of education for all (Pushpanadham 2015). It is expected that these OER can potentially solve the paucity of high quality teachers, inadequate infrastructures of universities including libraries and poor quality educational resources. The developments in digital technologies such as Big data, Internets, and artificial intelligence (AI) are taking place very fast and which can be utilized by universities to upgrade learning environments. Educational institutions at the university level will need to embrace digital solutions to teaching and learning as the future excellence in education and learning will come through digital technology. Technology like “google apps for education” serves as effective tool to connect with students. Teachers assume the active role in demonstrating digital skills so that students can acquire such skills fast. Also digital skill development courses should be offered. Educational institutions will need to invest on global learning network solutions to offer online training and workshops through video conferencing facilities. Distance learning can address challenges of class room instructions by way of hybrid educational programs. For this building technology platforms that will facilitate online and digital instructions in universities will be crucial.

Both public and private universities in the country will need to play active role in embracing this transformation to offer globally competitive education to develop skilled human resources. Given the ever increasing demand for higher education digital based distance learning solution will be essential to educate the population. Universities will need to adapt and design solutions to offer globally competitive online education. This means universities will need to focus on education on digital technologies and as well as application of such technologies in teaching and learning. Digitally equipped classrooms as well as digital platforms for online education will be extremely important in the higher education sectors in the country as this will be essentially create better understanding between providers of education and learners thus improving the quality of education.

While the role of government policy is extremely important in facilitating digital education- using technology to connect teaching and learning, collaboration between private sectors, digital industries and universities remains as important. The universities in Singapore and Malaysia have been able to maintain a credible and sustainable relationship with industries for collaborating and commercializing their research and development products and ideas (cited in Mohsin and Kamal 2012). Importantly the scope of education has widened in a knowledge based society. Increasingly there have been initiatives in advanced developed countries including countries in Asia to link higher education to external world that also takes into account labour market demands domestically and internationally. There have been reforms in higher education systems in these countries to create opportunities for higher education institutes so that the latter can become more responsive to the need of the society. Many countries have allowed their top institutions to open campuses and offer educational programs in other countries. There has been increasing collaboration among universities offering academic programs. Universities will need to focus on promotion of research, capacity building of faculty, financial support for research funding and their effective use, academic freedom, creating environment to do quality research, adequately incentivising faculty. For example, the universities can be put under an obligation to maintain and report their educational and research activities, with a detail self-monitoring and self-evaluation system.

The international dimension of quality education needs to be emphasized in view of globalization. This means countries like Bangladesh need to focus on educations that are nationally comparable as well as internationally acceptable. The learning crises need to be addressed at all level of education keeping in view of the global standard. Recent research has shown that globalisation has impacted higher education in developing countries requiring highly skilled human capital. The knowledge economy necessitate a well-developed quality education system, both based in teaching and research, particularly at the tertiary level, which will bring future prosperity of developing countries like Bangladesh to the level of developed countries.

1. **Conclusions**

The perspective plan 2021-2041 envisions Bangladesh to enter into knowledge based societies, requiring greater emphasis on education and skill through research and development. It is argued that a knowledge based society would be crucial for the level of economic development to the status of an upper middle income country. Globalization and the advancement of information technology will require competitiveness of individuals in order to adapt to such rapidly changing global economic environment necessitating the development of technically skilled workers who will propel the engine of growth. Future human development strategy should adopt holistic approach through education and training: begin with a greater focus on early childhood to develop cognitive skills and prepare a child for school; schooling under general education system need emphasizing cognitive and behavioural development of students by featuring more group learning and problem solving than memorization and copying; postsecondary education and training should be focused on building and updating technical skills. Improve quality of schooling can be enhanced with focused curriculum, teaching and assessment methods fostering higher order cognitive as well as behavioural skills. This will mean a general education curriculum that well balances competency based as well as content-based learning. This has to be supported by teaching method that can stimulate creating and critical thinking among primary and secondary students. The student assessment should eb tailored with the teaching and learning. The experience of Singapore and Korea is very pertinent in this context, which countries adopted curriculum and student assessment system that foster knowledge acquisition and active learning as well as creative and critical thinking in schools. Importantly, if the curriculum change can make meaningful results will depend on modernization of teacher training and their professional development.

The skill development system should be in line with the expectation of all stakeholders, students, universities, vocational institutions and not least the employers. Because disconnected skill development system that does not connect the demand and supply side will underperform toward the goal and may result in production of graduates not in line with the labour market reality. Again, students and parents may not be demanding certain types of program or training method that they would not desire to have to be successful in the labour market. With the structural transformation in the economy, there has been concern on skill shortage in various occupations as well as skill implying that skill development system should be tailored to overcome these constraints. Korean example suggests that the governments’ in developing countries need to follow an efficient system to implement vocational education and training commensurate with the industrialization process; Korea has transformed its vocational education and training systems to in line with changing industrial demands. Importantly, an economy cannot be globally competitive with simple skills alone. This implies that changes in the vocational education and training paradigm are needed to keep pace with a changing world, and that an industrial structure based on information services requires various basic, technical, and specialized abilities. Hence, “the goal of vocational education and training is not to lock students into specific jobs or skills, but to give them the ability to adapt to changing employment conditions (UNESCO, 2005).”

Building on progress achieved in basic education, strengthening of other levels of education in including vocational and higher education is important to have a well‐educated and skilled population with the capacity to contribute effectively to the country’s development. As the country in transition appropriate transferable skills and competencies are essential to the next level of development by increasing its knowledge‐based sectors. In the context of higher education, generation of knowledge as well as availability of knowledge for national competitiveness in a globalized world becomes crucial. For realization of the country’s long-run economic aspiration, skilled labour-force and hence high quality graduates are required. This means country’s higher education sector needs to be revitalized with appropriate policies and strategies. Finally, based on the successful experience of ASEAN countries(cited in VDR 2014), a clear vision, that originates through broad-based consensus and is well coordinated among different sectors for successful implementation, would be crucial for addressing the future human development challenges,. While targets need to be set realistically with short, medium and long term objectives, it would be important to have consistency between goals and actions and that budget should be aligned with effective implementation and monitoring of education reform. In this context clear coordination of educational policies and coordination among relevant ministries will be crucial for achieving shared education sector goals. The role of government for successful partnerships among various stakeholders would be crucial to ensure successful implementation of educational policies and reforms.

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**Appendix. Changes in Vocational Training during Industrialization in Korea**

|  |  |  |  |
| --- | --- | --- | --- |
| Rebuilding1945-1960 | Export led growth1961-1981 | Economic restructuring1982-1997 | Knowledge-based economy1998-200 |
| *Both vocational training and technical training were provided by industrial primary schools, vocational high schools, and six month short term industrial technology training centers.* *The first law to lay a foundation for vocational training was the Labour Standards Law announced in May 1953. The Labour Standards Law’s regulations on “fostering technicians” did**not stimulate vocational training or propose a basis for the government to**directly carry out vocational training; they were merely intended to protect**trainees. 15 institutions including the Korea Electric Power Corporation, the**Korea Shipbuilding and Engineering Corporation, Goldstar, and the Korea**Coal Corporation introduced apprenticeship training courses in the early 1960s,**and fostered the personnel needed in 11 industries including the electrical,**heavy chemical, machine, shipbuilding, welding, and plumbing industries.**This period can be seen as the birth of the modern vocational training system*. | *In the 1970s, the government pursued capital-intensive heavy-and-chemical**industrialization.* *The government’s industrial policy had a decisive effect on**vocational training. During this era, the Korean economy underwent dramatic growth that brought about a shortage of trained workers.**Although immense investments were being made in the heavy and chemical industries, these sectors lacked technicians and companies vigorously competed in scouting workers. To address the labour shortage, the government drafted a**Special Measures Law in December 1974 which promoted vocational training within the workplace. Employers of companies larger than a certain size were required to train a certain percentage of employees every year. In December 1976, the Vocational Training Law and the Special Measures**Regarding Vocational Training drafted in 1967 were combined into the “Basic Law on Vocational Training.” The law introduced a training levy system, with the employer required to conduct training or pay levy. To ensure job stability, the law also decreed that employees be provided job transfer training as well as pre-employment training* | *Due to stable economic growth, restructuring, and industrial rationalization**policies, the industries that led Korea’s industrialization shifted to technology intensive industries in the 1970s and then to knowledge-based industries in the**1980s. As the industrial structure became more advanced, automobiles, semiconductors, computers, and telecom equipment became the leading industries, and social overhead capital and service industries underwent dramatic expansion. The economy continued its rapid growth and Korea joined the OECD.**Vocation training in this period underwent expansion and several major policies were introduced. First, the Human Resources Development Service**of Korea (HRD Korea) was founded to provide vocational training, employment service, skills testing, human resource registration management,**and job study.**Second, the Korea University of Technology and Education was founded to foster vocational training instructors.* *. To respond to the expected rise in demand and**compensate for existing inadequacies, a vocational training development plan**was created in 1990.* | *The vocational training system during this period shifted from the training of**school leavers to lifelong skills development, and from a government-led and**supply-oriented delivery system to a private sector-led and demand-oriented**system.* *To respond to Korea’s transformation into a knowledge economy and a**lifelong learning society, systematic skills development over the working life**of an individual is needed. The 2004 Labourer Skills Development**Law law made the participation of labour and manage groups mandatory in the Basic Plan for Skills Development created by the**Minister of Labour, and provided preferential support for job training efforts**that were implemented after discussion between employers and workers. In**addition, all evaluations of skills development programs supported by the**Minister of Labour were systematized, providing differentiated support based on evaluation results created to shift from an input-based policy to a results-based**policy.* |

Source: Adapted from Understanding Korean Educational Policy **Vol. 5** Vocational Education and Training in the Process of Industrialization, 2009

1. These authors evaluated the ability of school students to answer simple arithmetic problems, finding significant discrepancies between years of schooling and cognitive outcomes. [↑](#footnote-ref-1)
2. This discussion is based on particularly summarizing the Chapter 11 of the 7th Five Year Plan (SYFP 2015). [↑](#footnote-ref-2)
3. Advanced education comprises short-cycle tertiary education such as a bachelor’s degree or equivalent education level, a master’s degree or equivalent education level, or doctoral degree or equivalent education level; Intermediate education comprises upper secondary or post-secondary non tertiary education; Basic education comprises primary education or lower secondary education(according to International Standard Classification of Education 2011). [↑](#footnote-ref-3)
4. The following discussion draws on Understanding Korean Education **Vol. 5**  Education and Korea's Development, 2007, Korean Educational Development Institute [↑](#footnote-ref-4)
5. This paragraph is based on Ying (2015). [↑](#footnote-ref-5)
6. See Understanding Korean Educational Policy Vol. 2 Universalization of Tertiary Education, Korean Educational Development Institute [↑](#footnote-ref-6)
7. Source: Adapted from Understanding Korean Educational Policy **Vol. 5**  2009, Korean Educational Development Institute [↑](#footnote-ref-7)
8. The following paragraph draws on Understanding Korean Educational Policy **Vol. 5** Vocational Education and Training in the Process of Industrialization, 2009, Korean Educational Development Institute [↑](#footnote-ref-8)
9. For summary of these policy changes on vocational education and training see Appendix. For detail review see Understanding Korean Educational Policy **Vol. 5** Vocational Education and Training in the Process of Industrialization, 2009 [↑](#footnote-ref-9)
10. The following discussion draws on Understanding Korean Educational Policy Vol. 6, Informatization of Education: ICT Use in Education, Korean Development Institute. [↑](#footnote-ref-10)