Pre-University Education Index

Introduction

There is a need to reconsider existing philosophies of teaching and education to better respond to the increasingly complex economic and social challenges and catch up with the continuous scientific and technological advances. Knowledge lies at the core of this rethinking on education and teaching to support a vision that empowers individuals and ensures quality of life to support human development. As Power writes:

> An empowering education is one that builds the human resources we need to be productive, to continue to learn, to solve problems, to be creative, and to live together and with nature in peace and harmony. When nations ensure that such an education is accessible to all throughout their lives, a quiet revolution is set in motion: education becomes the engine of sustainable development and the key to a better world.[1]

Education is granted increasing prominence in national, regional and international development strategies as well as in the programmes of the United Nations, the World Bank and government as well as non-governmental institutions.

Most notable among these programmes has been the Global Education First Initiative (GEFI), launched by the United Nations Secretary-General Ban Ki-moon on September 26, 2012 to accelerate efforts towards achieving global education goals by 2015 through which he urged countries to fulfil their related obligations. In the words of the Secretary-General, "when we put education first, we can reduce poverty and hunger, end wasted potential and look forward to stronger and better societies for all."[2] This personal commitment helped rally "a broad spectrum of actors, including governments, donor nations, the business community, philanthropic organizations and the media … [to] put education at the heart of the social, political and development".[3]

The World Bank offers considerable support in the form of funding and provision of knowledge services such as analytical work, policy advice and technical assistance to help countries achieve their educational goals. The World Bank's Education Sector Strategy 2020, *Learning for All: Investing in People's Knowledge and Skills to Promote Development*, is considered an important framework emphasizing the need to invest in education early, smartly and for all.[4] The World Bank encourages countries to "jump-start learning through Early Childhood Development (ECD) programs, create a robust learning environment that measures learning and improves accountability, and build skills for a productive workforce".[5]

Education is also central to the 2030 Agenda for Sustainable Development, where the fourth goal aims to "ensure inclusive and quality education for all and promote lifelong learning".[6] The agenda states that "obtaining a quality education is the foundation to improving people's lives and sustainable development", and that "bolder efforts are needed to make even greater strides for achieving universal education goals."[7] The Incheon Declaration, adopted at the World Education Forum in the Republic of Korea in May 2015, entrusted the United Nations Educational, Scientific and Cultural Organization (UNESCO) with the role of leading and coordinating efforts towards this goal.[8] The declaration constitutes a historic commitment to achieve education for all and transform people's lives through a new and more comprehensive vision. A policy paper published in 2015 by UNESCO under the title *Sustainable Development Begins with Education* further underlines the critical role of education in achieving global goals, highlighting that "sustainable development for all countries is only truly possible through comprehensive cross-sector efforts that begin with education".[9]

Owing to the strong interconnections between education, knowledge and development, governments and international organizations have placed quality education at the top of their strategic priorities. This has led to discussions regarding how best to mobilize the necessary financial and human resources in order to guarantee a renewed and more effective educational system whilst ensuring improved outputs and efficient management of resources. Such discussions have given rise to the emergence of monitoring and evaluation tools as a reliable means for assessing the knowledge status, performance and progress of educational systems.

The use of indicators is essential for developing educational systems, as they help monitor and evaluate the various planning and implementation phases of educational programmes. Their importance also stems from their contribution to promoting accountability and transparency by providing accurate information and data on educational policies and the quality of their outputs. If indicators are well-designed and regularly updated, they can facilitate comparisons of the outcomes of educational systems over time and across different geographical areas, which is important in identifying strengths, weaknesses and best practices. This will equip leaders with the necessary information to efficiently apply resources to driving educational projects forward.

The Pre-University Education Index therefore represents the first step towards developing a methodological tool to measure the efficiency of the pre-university educational system, from pre-school through secondary education. Experts in the Arab region and elsewhere have underscored the relevance of this index while stressing its validity, consistency and reliability. This chapter presents the methodology and results of a review of the 2015 edition of the index, with a view to identifying needs for additional data and means to enhance its overall structure.[10]

Formulation process and initial structure of the index

The development of the first edition of the index in 2015 was based on three foundations. The first was drawn from the vision adopted across the three Arab Knowledge Reports, which:

Linked knowledge with development and introduced the goals of joining the broader knowledge society and establishing individual knowledge economies within the framework of an integrated project. Such a project requires the production of high-efficiency human capital with effective cognitive skills (reading, scientific and other skills), social skills (values, attitudes and behaviour dedicated to the principles of positive citizenship and active interaction in daily life) and economic competencies (ability to integrate with the labour market and contribute to developing

the economy), among others. It also aims to provide enabling environments that nurture and motivate the acquisition, production and localisation of knowledge.[11]

Secondly, the initial index was conceived to expand the concept of knowledge performance beyond measuring educational outputs to also reflect values and the broader contextual environment. Thirdly, the ultimate goal of the index was not simply considered to be about the production of data, but it was rather envisaged to inform decision makers and assist them in devising sound and effective development policies.

In developing the index, a desk review of a number of reports on education published by regional and international organizations (including UNESCO, the United Nations Development Programme [UNDP], the Arab League Educational, Cultural and Scientific Organization [ALECSO] and the Organisation for Economic Co-operation and Development [OECD]). The review identified existing methodologies, techniques, and databases designed to measure and compare the development of educational systems. Furthermore, a regional workshop was held with education experts from a number of Arab countries and individual consultations were undertaken with specialists on conceptual and technical issues. In addition, three background papers were prepared by experts from Tunisia, Morocco and the State of Palestine on specific constituents of the index.

The process of developing the index included four stages: a preparatory stage to gather and classify available indicators on education; a second stage to examine indicators and analyse their strengths and weaknesses; a third stage to develop the index's general structure; and a final stage to apply the index to the available data, validate the integrity of its structure and ensure alignment with international standards.[12]

In light of the above methodology, a composite index was proposed consisting of four complementary and interconnected pillars: *general developmental context*; *enabling environments*; *knowledge capital*; and *management and governance of the educational system*. The structure of the index is provided in Figure 3.

Figure 3:

The structure of the 2015 Pre-University Education Index
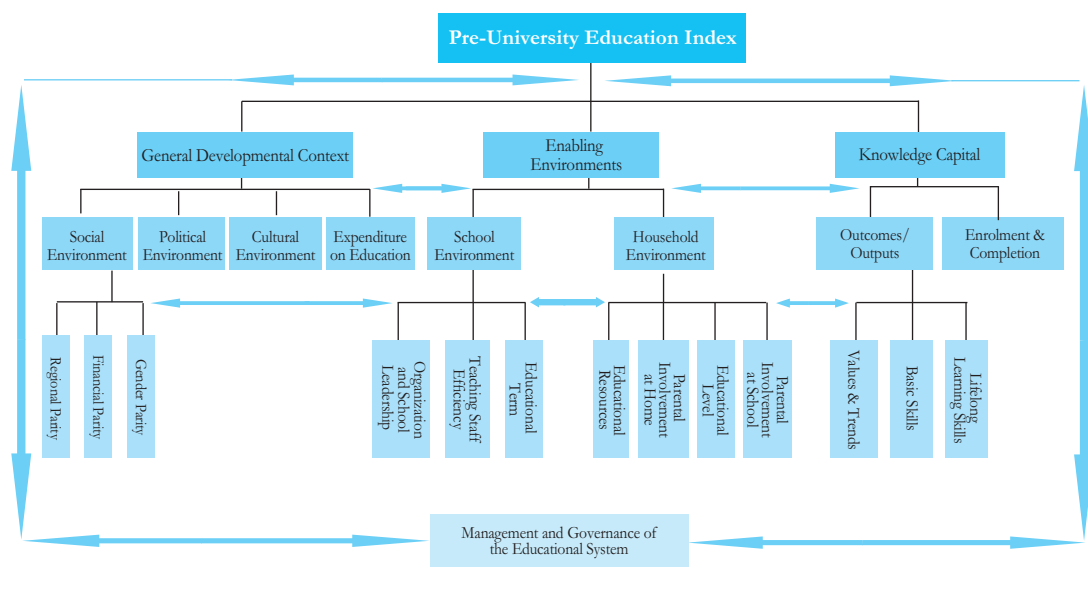
Revisions

The 2016 Pre-University Education Index features some revisions in the structure of the 2015 version. The revision process began with a compilation of the results of the statistical analysis of the 2015 data, the gathering of comments provided by experts, and meetings with international organizations such as the OECD and the Data Processing and Research Center of the International Association for the Evaluation of Educational Achievement (IEA).

Based on this review of the AKI 2015, a number of suggestions were made for enhancing the Pre-University Education Index, the most significant of which were as follows:

- Address data availability challenges for a more comprehensive application of the index.
- Integrate additional variables on social justice and equality, given their influence on the quality of education.
- Link the index and its pillars to the 2030 Agenda for Sustainable Development, thereby adding global benchmarks for comparative analysis.
- Develop additional medium- and long-term recommendations, such as coordinating with national and international education-related institutions to speed up and improve the process of data collection.

Consultations with international organizations mainly revolved around the following points:

- Conceptually: the term 'pre-university education' was identified as being potentially misleading, as in some educational systems its use is not necessarily limited to pre-school, elementary, preparatory and secondary educational stages, which form the focus of this index. Therefore, a suggestion was made to use the classification of the Supervisory Control and Data Acquisition (SCADA) system, especially considering the intention to broaden the scope of the index from the regional to the global level in the future.
- Statistically: views were exchanged regarding statistical approaches, especially in terms of data availability, weight distribution and data normalization.
- Procedurally: it was proposed that the AKI team could coordinate more systematically with the UNESCO Institute for Statistics and the World Bank Group to gather data and avoid overlaps.

As a result, a limited number of revisions were made to the 2015 Pre-University Education Index, as shown in the following sections.

Revisions applied to the main structure

The scope of the index was expanded to reflect the important role of pre-school education in building a child's personality and equipping him/her with knowledge that facilitates learning in subsequent stages, as well as enhancing cognitive and social skills. The 2015 Index focused on enrolment rates at the pre-elementary level to assess a country's education coverage. However, it proves to be equally important to explore qualitative aspects. Therefore, a third sub-pillar, *early childhood education*, was added under the *enabling environment* pillar.

The World Bank's Education Sector Strategy 2020 calls for encouraging early childhood learning and stresses the importance of continuity, both within and outside the formal schooling environment. The science of early childhood development indicates that healthy brain growth in children requires inputs and attention long before the officially-recognized age for starting school — six or seven years old. This potential for development necessitates investment in prenatal health care and early childhood development programmes. Similarly, the quality of education received in the first few years of learning is critical to equipping children with basic reading and mathematics skills, both of which are essential for lifelong learning.[13]

Many studies show the existence of a strong link between early childhood learning and educational attainment in the subsequent stages of education. More than twenty studies conducted in Latin America, sub-Saharan Africa, and both South and South-East Asia indicate that "stimulating children's cognitive development early has large positive effects on children's future trajectories", and that "good early childhood care and education has a more significant positive impact on children from disadvantaged groups, making it a sound investment, and linking it to long-term positive impacts on education outcomes."[14]

As such, the decision to create a sub-pillar for early childhood (pre-school) programmes under the Pre-University Education Index is consistent with global understanding and trends, as well as with the 2030 Agenda for Sustainable Development.

The variables adopted to represent and reflect this relation are derived from UNICEF's Multiple Indicator Cluster Surveys database[15], which are based on periodical surveys conducted internationally, including in a number of Arab states.

Secondly, the use of technology in education and school management was included in this year's version given the wide reach and use of ICT within classrooms and beyond, ICT integration in teaching and learning has become a common feature of educational system reform plans. The end is not solely to introduce ICT, but rather to encourage its employment as a means to improve curricula, teacher qualification programmes, and planning and administration processes, in conjunction with the provision of appropriate teacher training programs and technical support.

Modern technology defies traditional teaching methods, enriches skill sets and expands digital horizons. It can "improve the teaching/learning process by reforming conventional delivery systems, enhancing the quality of learning achievements, facilitating state-of-the-art skills formation, sustaining lifelong learning and improving institutional management."[16]

The functional role of ICT in improving education has led to the creation of indicators that monitor its application and consequent results. Examples of this are the Eurydice Network, which gathers information on how education systems in Europe function, and the OECD Centre for Educational Research and Innovation (CERI), which offers a series of case studies on integrating technologies in the education sector. In addition, a number of countries, including the United States, Australia, Singapore and China, have developed guiding principles and standards specific to the use of ICT in education.

In light of the above, the AKI team decided to focus on ICT usage and its contribution to the quality of education within the teaching/learning process. As such, ICT use which was previously a sub-component (*ICT equipment*) of the *organization and school leadership* component in the 2015 index, is now featured and elevated to be a separate component on its own, titled *use of education technology*. This component now has two

sub-components: *technological infrastructure* and *use of CAI technologies.*

Third, a sub-pillar on the health environment under the *development context* pillar was added. This change was introduced to reflect the reciprocal relationship between health and the educational system. Providing proper health care from early childhood, including basic medical attention in schools, improves children's chances of learning and developing skills. In turn, as societies reach higher levels of educational attainment, individuals are more aware of health risks and of the preventative measures required to maintain their health. Health is one of the main Sustainable Development Goals, which emphasize the necessity of ensuring good health and well-being for people of all ages through the provision of quality health-care services and coverage.

A health environment that is conducive to knowledge and development includes a health care system that provides high quality services to all. However, wide discrepancies in the quality and accessibility of services exist in the Arab region today. In this regard, the World Health Organization's (WHO) Global Health Observatory (GHO) publishes the World Health Statistics annual report to provide data on key health indicators and progress toward the health-related SDGs. Therefore, to reflect the above in the *health context* sub-pillar, the AKI team relied on a set of variables published by the GHO relating to quality of education.

Moreover, sub-components targeting groups with special needs (such as disabled and talented persons) were added. Most human characteristics (physical, mental, sensory, social, reactory, communicative, etc.) in any given society are viewed in terms of what is "average" and is therefore perceived as "normal". This leads to the emergence of two minorities: those below average and those above average – the disabled and the talented, respectively. There is a need to monitor the conditions experienced by these groups and track their integration, and the extent to which they enjoy good quality education adhering to the principles of justice and equality.

The tenth Sustainable Development Goal aims to reduce inequality within and among countries,

and recommends adopting a holistic approach to policies that consider the needs of disadvantaged and marginalized populations.[17] Its objective is "by 2030, [to] empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status".[18]

Those with disabilities are accorded more attention than highly talented people both at the national and international levels. For example, two out of ten education-related goals in the 2030 Agenda for Sustainable Development refer to the disabled, while none refer to gifted and talented individuals. Furthermore, no United Nations convention exists concerning talented people, whereas the UN Convention on the Rights of People with Disabilities was adopted in 2006.[19] In recent years, ALECSO developed a strategy to nurture talented persons in the Arab region, but no practical steps were taken to implement it. Both of these groups have special needs that need to be given due consideration in order to avoid their exclusion or marginalization.

The AKI core team believed it was necessary for the Pre-University Education Index to assess the measures taken by policymakers to support students with special needs. Therefore, the aim was to introduce variables related to the legal, institutional, regulatory and educational requirements for the integration of all kinds of people with special needs in society under the *school environment* sub-pillar. However, lack of sufficient data constitutes a challenge for the AKI team, as it requires conducting systematic surveys in the short term to fill the data gap.

As for the fourth pillar, *management and governance of the educational system*, the persistent lack of data (such as on the management styles of various authorities, the distribution of powers at the central and local levels, monitoring and evaluation processes, control and accountability systems, etc.) still hinders its activation.

The only initiative launched in this regard is the Systems Approach for Better Education Results (SABER),[20] which fills a critical gap in knowledge and data related to international education.[21] Despite its incomplete status, the SABER initiative could still help countries conduct comprehensive evaluations and analysis

of their education policies and institutions, in addition to providing stakeholders with a tool for effective policy dialogue.

As for the relative weights of the various constituents of the index in its new structure, the first pillar, *knowledge capital*, will still have the highest weight of 40%, with the remaining 60% being equally distributed between the other two pillars: *enabling environment* and *development context*. The weights of the pillars were then equally distributed among all corresponding sub-categories taking into account the new changes, as detailed in Table A1 in the Annex.

Revisions applied to the variables

The newly added *early childhood education* sub-pillar consists of two components, *enrolment* and *outcomes*, that together include a total of three variables; two variables constituted the *enrolment* component, namely, *gross enrolment ratio in pre-primary education* (previously part of *enrolment and completion*) and *attendance in early childhood development* (new variable). The one newly added variable *Early Child Development Index* was placed under the *outcomes* component. The relative weight of the sub-pillar was divided equally among its two components, whose weights were in turn distributed across their respective variables in an equal manner.

The new component *use of education technology* under the *school environment* sub-pillar consists of five variables: *Internet access in schools, educational institutions with computer-assisted instruction (CAI), educational institutions with computer laboratories, strategies to promote integration of ICT in education* and *curriculum including recommendations for ICT-assisted instruction in mathematics, natural sciences, social sciences, reading, writing and literature and second language*. The weights of the sub-components were equally divided among their corresponding variables.

The six variables incorporated under the *health context* sub-pillar include the following: *access to improved sanitation facilities, total health expenditure, life expectancy at birth, total density of hospitals per 100,000 population, average of 13 international health regulations core capacity scores* and *skilled health professional's density per 10,000 population.*

The revised version of the *development context* pillar includes new variables calculated by the AKI team to better reflect required data related to gender and regional parity.

The new variables under the *regional parity* component are: *urban vs. rural improved sanitation facilities, urban vs. rural improved water source,* and *urban vs. rural Composite Coverage Index*; also four previous variables reflecting the difference in the net attendance rate in primary education and the poverty gap between urban and rural areas were replaced with two new ones calculated by the AKI team namely, *urban vs. rural net attendance rates in primary education* and *urban vs. rural poverty gap at national poverty lines.*

As for the *gender parity* component, three team-calculated variables were added: *gender parity index for youth literacy rate (15-24 years), gender parity index for literacy rate (25-64 years)* and *gender parity index for elderly literacy rate (65 years and above).* Additionally, two team-calculated variables *difference between rates of unemployment for females and males* and *difference between the percentage of women and the percentage of men in parliament* replaced previous related variables for more accurate results.

Certain variables were also removed after careful consideration as their impact on the 2016 index was negligeable compared to other variables or factors.

These are *do you trust or distrust the following groups: teachers* under the *knowledge capital* pillar*; how much do you agree that you feel comfortable using computers in your teaching* (opinions of mathematics and science teachers separate) under the *enabling environments* pillar; the eight variables *gross enrolment ratio for pre-primary education, gross enrolment ratio for primary education, gross enrolment ratio for lower secondary education, gross enrolment ratio for secondary education, gross graduation ratio from first degree programmes in tertiary education (gender parity index), female labor force participation rate, income share held by lowest 20%* and *income share held by highest 20%* also under different constituents of the *general developmental context* pillar.

The changes applied to the variables of the 2015 Pre-University Education Index are summarized in Table 1.

Changes applied to variables in the 2015 Pre-University Education Index†

Variable	Modification
Knowledge capital pillar	
Gross enrolment ratio, pre-primary, both sexes (%)	Moved*
Do you trust or distrust the following groups: the teachers?	Removed
Enabling environment pillar	
Attendance in early childhood development (36-59 months)	Added
Early Child Development Index	Added
Computers available for instruction	Replaced**
How much do you agree that you feel comfortable using computers in your teaching? (mathematics teachers)	Removed
How much do you agree that you feel comfortable using computers in your teaching? (science teachers)	Removed
Educational institutions with computer laboratories	Added
Strategies to promote integration of ICT in education	Added
Curriculum includes recommendations for ICT-assisted instruction to form part of subject delivery in mathematics, natural sciences, social sciences, reading, writing and literature and second language	Added
Development context pillar	
Access to improved sanitation facilities (% of population)	Added
Total health expenditure (% of GDP)	Added
Life expectancy at birth, both sexes (years)	Added
Total density per 100000 population: hospitals	Added
Average of 13 international health regulations core capacity scores	Added
Skilled health professional's density (per 10000 population)	Added
Gross enrolment ratio, pre-primary, both sexes %	Removed
Gross enrolment ratio, primary, both sexes %	Removed
Gross enrolment ratio, lower secondary, both sexes %	Removed
Gross enrolment ratio, secondary, both sexes %	Removed
Gross graduation ratio from first degree programmes (ISCED 6 and 7), in tertiary education gender parity index (GPI)	Removed
Unemployment, female (% of female labor force)	Replaced**
Proportion of seats held by women in national parliaments (%)	Replaced**
Labor force participation rate, female (% of female population ages 15+)	Removed
Income share held by lowest 20%	Removed
Income share held by highest 20%	Removed
Net attendance rate, primary, urban, both sexes (%)	Replaced**
Net attendance rate, primary, rural, both sexes (%)	Replaced**
Rural poverty gap at national poverty lines (%)	Replaced**
Urban poverty gap at national poverty lines (%)	Replaced**
Youth literacy rate, population 15-24 years, gender parity index (GPI)	Added
Literacy rate, population 25-64 years, gender parity index (GPI)	Added
Elderly literacy rate, population 65+ years, gender parity index (GPI)	Added
Improved sanitation facilities (%), urban vs. rural (net difference)	Added
Improved water source (%), urban vs. rural (net difference)	Added
Composite Coverage Index (%), urban vs. rural (net difference)	Added

* The variable has been moved to another pillar in the index. For more information, refer to Table A1 in the Annex.
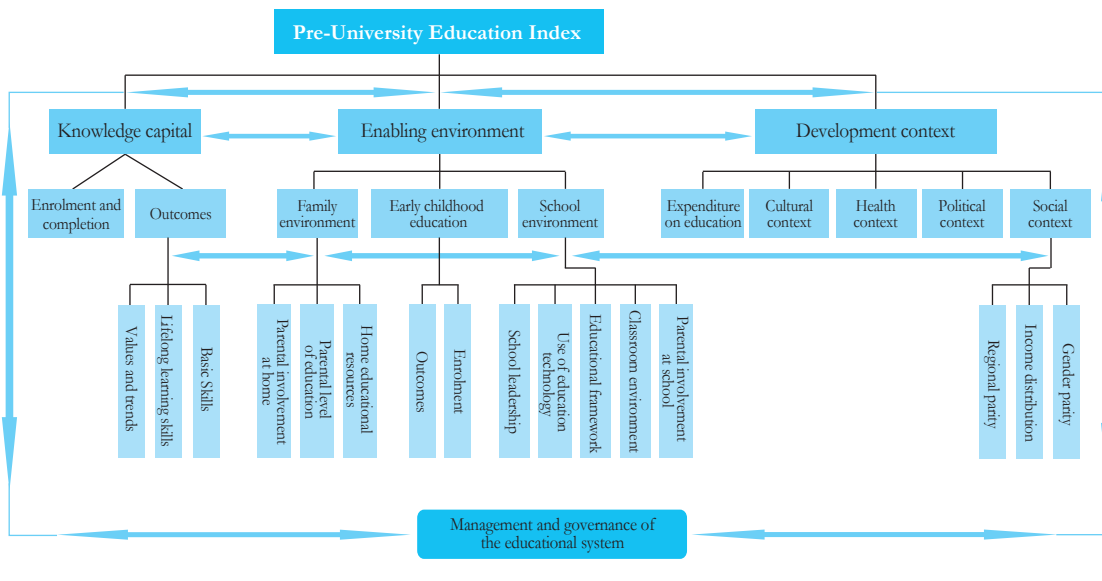
** The variable has been replaced with another one. For more information, refer to Table A1 in the Annex.

† The names of the pillars have been updated to include changes resulting from the 2016 revisions.

Revised structure (2016 version)

The revised structure of the Pre-University Education Index

Results

The results of the Pre-University Education Index show that the Gulf Cooperation Council (GCC) countries topped the rankings (Figure 5), where Bahrain, Qatar, and the United Arab Emirates all scored above 70. This is consistent with the results of other international studies such as the TIMSS and PISA surveys.

The progress in the performances of the education sectors of GCC countries is particularly due to the high scoring in those indicators capturing the general state of development. For example, the Global Innovation Index, the Innovative Capacity and Localization of Technology indices, as well as the Global Competitiveness Indicators, Arab Competitiveness Indicators and others confirm that the GCC countries outperform other Arab countries and even some countries in other regions. This is not merely the result of access to financial resources - as many might assume. In fact, other Arab countries with a significant financial capacity scored less than others with fewer resources.

Arab countries that scored less than 50 all suffer from volatile conditions as a result of political and social crises or conflict. This confirms that performance of the education system is sensitive to the social, political and economic environment. According to UNICEF's report, *Education Under Fire: How Conflict in the Middle East is Depriving Children of their Schooling*,[22] conflicts in the Middle East have prevented at least 13.7 million children from attending school in Iraq, Libya, Sudan, Syria and Yemen. This represents 40 percent of total school-age children in these countries, with at least two million children out of school in each country. War and conflict not only damage infrastructure, but are also an obstacle to teaching and affect children's desire to study and learn. In this respect, Peter Salama, Regional Director for UNICEF in the Middle East and North Africa, pointed out: "It's not just the physical damage being done to schools, but the despair felt by a generation of schoolchildren who see their hopes and futures shattered".[23]

The results of the pillars mainly reflect the ones of the sectoral index. Among countries which scored above 50 on the overall index, six countries (Bahrain, Jordan, Kuwait, State of Palestine, Qatar and the United Arab Emirates) scored above 50 on all three pillars, but with wide disparities between them. Some countries scored below 50 on the *enabling environment* pillar (Morocco, Oman and Saudi Arabia), and

Figure 5:

Results of Arab countries on the Pre-University Education Index
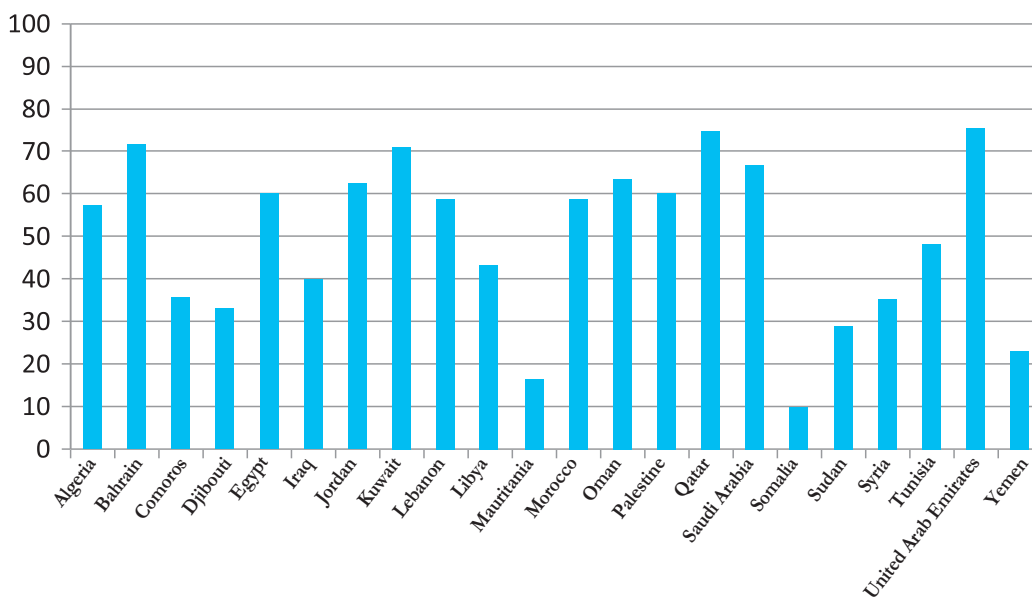
the *development context* pillar (Algeria, Egypt and Lebanon). Three countries scored above 50 on only one pillar (Djibouti and Tunisia on the *development context* pillar, and Iraq on the *enabling environment* pillar). The remaining countries scored below 50 on all three pillars (Figure 6).

Generally, there is a positive correlation between these pillars, but this is not sufficient to confirm the existence of coordinated efforts to improve the various components of these education

systems. Correlation coefficients ranged from 0.573 to 0.668, which indicates a need for more coordination and integration.

In terms of the sub-pillars, lack of data prevented the calculation of scores for some countries. For example, the *outcomes* sub-pillar was not calculated for seven countries, including Egypt and Libya. The *family environment* sub-pillar was not calculated for 11 countries, including Algeria, Egypt, Iraq, and Kuwait. The *early*

Figure 6:

Results of Arab countries on the main pillars of the Pre-University Education Index

◆ Capital knowledge   ■ Enabling environment   ▲ Development context
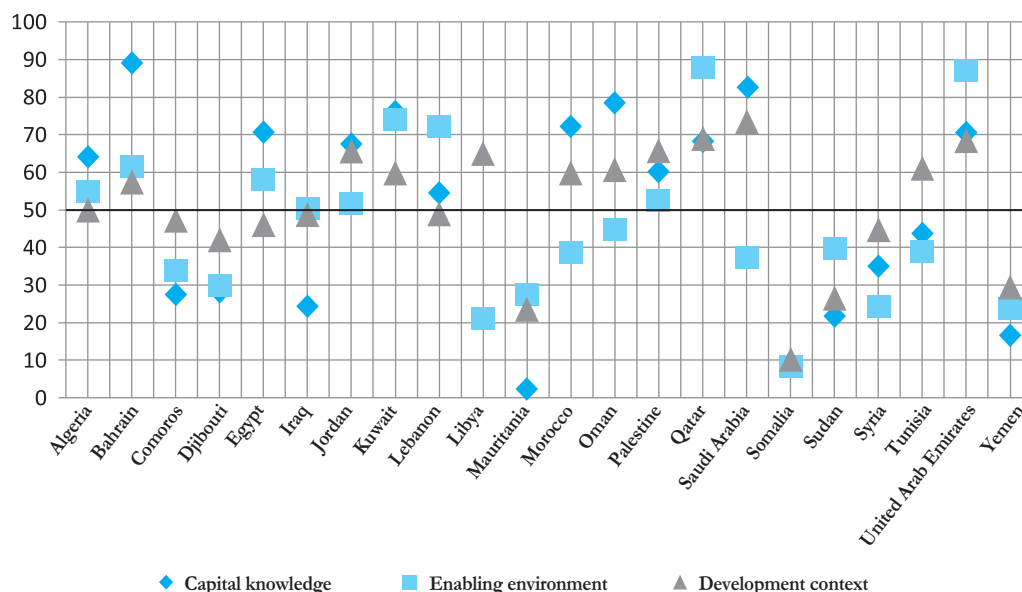
childhood education sub-pillar was not calculated for seven countries, including Bahrain, Kuwait, Saudi Arabia and the United Arab Emirates. This is in itself an important sign, as it indicates a lack of interest in these environments, which results in the inability to monitor their progress and make consequent improvements.

The available data reveals wide disparities at two levels: among Arab countries, and between the components of the sub-pillars within the same countries:

- The first pillar, *knowledge capital*, consists of two sub-pillars: *enrolment and completion* and *outcomes*. Most Arab countries performed well on the first sub-pillar (Oman scored highest at 92.39), while Djibouti, Iraq, Syria, and Yemen lagged behind. In terms of the *outcomes* sub-pillar, 10 countries scored above 50, with Bahrain, Morocco, Saudi Arabia, and the United Arab Emirates scoring the highest. Five countries scored below 50, and data was not available for seven countries.
- For the second pillar, *enabling environment,* the results showed different scoring in its sub-pillars. Only five countries (Bahrain, Jordan, Lebanon, Qatar and the United Arab Emirates) scored above 50 on the *family environment* sub-pillar. Seven countries scored above 50 on the *early childhood education* sub-pillar, with Lebanon at the top with 95.92 points. Scores on the *school environment* sub-pillar were relatively better, as 13 countries (including Qatar, United Arab Emirates and Kuwait at the top) scored above 50. In general, these results show an interest by most countries in improving the education environment through the provision of educational equipment, teacher training, reducing classroom overcrowding, increasing cooperation with parents, etc. All of these are important and necessary steps, but they are not sufficient to improve the quality of the education system's outputs. There is an urgent need to exert greater effort towards improving the household environment, nurseries, and other institutions that contribute to children's upbringing. More attention should also be devoted to monitoring and evaluating the performance of these institutions through regular collection of relevant data.

- Regarding the *development context* pillar, strong positive correlations were noted between its sub-pillars. The highest correlation coefficient was between the *health context* and *social context* sub-pillars (0.896), followed by that of between the *health context* and *cultural context* sub-pillars (0.811). Scores on these sub-pillars varied between and within countries. Looking at the countries for which scores could be calculated on all five sub-pillars, only Saudi Arabia maintained scores of above 50 on all sub-pillars, while Bahrain, Jordan, Oman, Qatar and the United Arab Emirates scored above 50 on four sub-pillars; namely *cultural context*, *health context*, *political context*, and *social context*. The results for the remaining countries were varied, rising above 50 on some sub-pillars and falling below 50 on others. This indicates lack of a clear and balanced approach in dealing with different aspects of development.

A comparison of the performances of countries on various sub-pillars identified an interesting conclusion regarding the link between expenditure on education and the quality of the education system. Six countries scored above 50 on the *expenditure on education* sub-pillar (ranging from 61.27 for Syria to 80.12 for Tunisia). However, no statistically significant correlation was noted between *expenditure on education* and the overall score on the Pre-University Education Index. This confirms the conclusion of previous reports – e.g. World Bank and Arab Knowledge Reports – that returns on investments in education are low when it comes to learning quality because most of the funds are spent on infrastructure, wages, and logistical requirements. This does not mean that financial resources are not important for improving the performance of education systems; it rather implies that no matter how big or small these resources are, the required results will not be achieved in the absence of: a strategic vision that prioritizes the right aspects of the education system; a leadership that is capable of effectively directing the development of the system; and consistent social support for development efforts.

Rather than ranking Arab countries on a scale – which might encourage them to simply improve their results without solving the actual

weaknesses in the system – the Pre-University Education Index focuses on identifying trends based on the scores on the overall sectoral index, as well as its individual pillars and sub-pillars. This helps identify some general characteristics of Arab education systems and the different factors which might affect them.

Comparative analysis of the pillars and constituents of the Pre-University Education Index confirm the need for a coordinated approach in dealing with various aspects of the education system to avoid focusing on one area at the expense of others. Some countries scored highly in certain areas, but very poorly in others, which negatively affected their overall performance. The Pre-University Education Index is based on the influence that enabling environments have on the quality of education outputs. Therefore, there is a need to develop education reform policies that take into account a number of internal links (between components of the education system) and external links (between these components and the surrounding factors which have a direct impact on them).

In addition, the analysis revealed certain areas of excellence in some Arab countries. Having such success stories in Arab countries offers two advantages. First, it offers the possibility for replicability, given the similar conditions and cultural characteristics in the Arab states (instead of applying lessons from the experiences of countries from other regions that may require lengthy and detrimental adaptation processes). Second, it provides an opportunity for nurturing Arab cooperation and information sharing, especially in those areas of excellence.

Finally, this improved version of the Pre-University Education Index represents an important methodological tool to support the implementation of the fourth SDG which aims to ensure inclusive and quality education for all and promote lifelong learning in the Arab region and beyond. The pillars and components of the index cover several concepts that are included in the education-related SDG targets, such as gender equality, early childhood programmes, literacy for all, education facilities, training teachers, measuring knowledge, skills and values, etc.

Finally, ensuring the availability of adequate data for the index is a critical issue. Plans must be developed to collect such data on a regular basis using methods that guarantee the highest levels of accuracy and objectivity.

Endnotes

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3 UNESCO, 2012.
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5 World Bank, 2014d.
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23 UNICEF, 2015a.