

International Bureau of Education

IBE

# INFOCUS



EDUCATION  THE FUTURE

2017





learning to learn,

learning to do,

learning to be,

and learning to live

together



## Message from the Director

Mmantsetsa Marope  
Director, IBE-UNESCO

The 2017 issue of *IBE In Focus* is here! With it comes the privilege of sharing my reflections on another demanding yet fulfilling year at the IBE.

This issue covers 2016/2017. 2016 was a year of reflection and lessons of experience from the inaugural issue of *IBE In Focus*, published in 2015. Thanks to the generous feedback of our readers, the 2017 issue is wiser, richer, and sleeker. The rhythm is set. Each fall our keen readers can expect a new issue of this magazine. I trust you will agree with me that the warm cover of this issue will crown many a desk like warm autumn leaves on mountain tops.

Nearly two years after the adoption of the Sustainable Development Goals, this issue of *IBE In Focus* illustrates how the IBE 'walks the talk' of the Education 2030 Agenda. It highlights programs and initiatives to heighten the IBE's contribution to the improvement of education quality and learning outcomes, equity and inclusion, and development relevance.

On development relevance, this issue underscores how much the Education 2030 Agenda is being pursued within the rapidly changing context of 21<sup>st</sup>-century development. Moreover, the onset of the fourth industrial revolution (IR 4.0) is exponentially accelerating the complexity and velocity of change. Sustaining development relevance within IR 4.0 will put the foresight and anticipatory capacity of many education and learning systems to an unprecedented test. There is a real risk that unprepared systems will be left behind. Lack of readiness to take up the opportunities and to face the demands of the IR 4.0 can set back progress towards a more equitable, inclusive and sustainable future in, and through, education.

This issue highlights IBE's initiatives for ensuring that curricula enable learners, young and old, to acquire the future competences required for the IR 4.0. These initiatives should also bolster the foresight and anticipatory capacity required to keep national curricula relevant. A futuristic perspective permeates this issue. It sounds the IBE's decisive call for several actions: rethink and reposition curriculum in the 21st century; elaborate a global paradigm shift on curriculum; articulate future competences and the future of curriculum; broker cutting-edge research to define the future of learning; advocate for multiculturalism as a way to peaceful, just, and cohesive societies; and more. This is another departure from the 2015 issue, which placed a strong accent on the IBE's 90-year history, and painted its present only in broad strokes.

I am very grateful to esteemed contributors and partners whose resounding voices fill these pages. The 2017 *IBE In Focus* features guiding wisdom from heads of states, lessons worth learning from ministers of best-practice countries, and illuminating experiences from leading personalities in areas of the IBE's competence. This issue gives the reader a textured flavor of working with the IBE.

Sincere gratitude also goes to distributors of *IBE In Focus*, who afford this magazine excellent product placement. Specifically: the VIP lounges of the Monaco Yacht Club, the Montreux Jazz Festival, and La Réserve Hotel in Geneva; the first and business class lounges of South African Airways and Swiss Airlines; the Swiss State Protocol Lounge at the Geneva airport; partners of the IBE; and of course the readers and followers of *IBE In Focus*.

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## Statement from the President of the IBE Council



**Hamoud bin Khalfan Al Harthy**  
Undersecretary for Education and Curricula, Ministry of Education, Oman; President, IBE-UNESCO Council

The 2017 issue of *IBE In Focus* invites us all to reflect on what accounts for the IBE's extraordinary longevity and successful evolution over its 92 years of existence. Most importantly, it foreshadows the future of the IBE.

In its 92-year history, the IBE has left an indelible mark on the field of education. The first intergovernmental organization on education, it founded global education as we know it today. Since 1929, the IBE has been convening intellectual, political, and technical trailblazers, along with other stakeholders, to discuss and set global policies and programs, leaving an unmistakable influence on major global education policies the world still implements today. It is now fostering its anticipatory and foresight capacity, reaffirming itself as the Center of Excellence and a global intellectual, technical and normative leader on curriculum, and on its teaching, learning, assessment, and systemic implementation.

The IBE has stood the test of time and remains meaningful, primarily because of the purpose it serves; put simply, it responds to the needs of peoples and countries. The fundamental purposes and unique values that define the IBE have not changed, for they are enduring. But the problems to be solved have constantly broadened and become ever more complex, in a world almost unimaginably different from the

one the IBE's founders inhabited nearly a century ago. It is a world that faces urgent concerns, from the rise of violent extremism and humanitarian crises, to the growing divide between rich and poor, to gender inequality and climate change. And the list continues.

I believe the IBE is ideally suited to reflect on and respond to the challenges of this new era.

As the president of the IBE Council, I feel energized by and confident about the opportunities before the IBE. Yet, the IBE faces formidable strains and obstacles.

I call on Member States to step up their voluntary contributions to the IBE. I specifically thank the Swiss Confederation, the Republic of Nigeria and the Republic of Seychelles for their generous voluntary contributions, without which the world would not have enjoyed the intellectual leadership and technical services of the IBE. But these three countries cannot bear the burden alone. Collectively, we cannot allow financial challenges to jeopardize the IBE's shared intellectual heritage of nearly a century, just as the pace of change intensifies in the 21<sup>st</sup> century, leading the world to so crucially need the IBE's anticipatory and foresight capacity. Our voluntary contributions, and the ongoing diversification of IBE's partners (including the private sector, foundations, and private philan-

thropists) spearheaded by the Director and her team, are essential to sustain our joint benefits from the technical assistance of the IBE, as well as to sustain its ability to stay at the forefront of creating, managing, integrating, and disseminating knowledge in service to the world.

The IBE's first commitment is to the Member States: supporting their efforts to provide quality, relevant, and equitable education and learning opportunities to all.

As we take note of the projects, partnerships, events, and publications presented in this captivating issue of *IBE In Focus*, I hope we can pause to appreciate even more a less visible but crucial element: the monumental efforts and consuming drive behind everything the IBE offers to the world.

Please join me in taking responsibility for the future of the IBE.



Why travel as a passenger?

I can be a guest.

## Statement from UNESCO ADG



Qian Tang  
Assistant  
Director-General  
for Education,  
UNESCO

Sustainable Development Goal 4 (SDG4)—Education 2030—provides an opportunity to strengthen the role of curriculum as an effective tool for improving the quality, inclusiveness and development relevance of education.

Well-designed and implemented curricula equip people with the knowledge and skills they need to face emerging challenges and shape more just societies. They help them develop lifelong learning competences, social attitudes, and skills, so they can lay the foundation for sustainable development and sustainable lifestyles.

A good curriculum mainstreams gender, supports learners' personal development, and responds to the needs of each society. It ensures learning opportunities through a consistent framework of formal, non-formal, and informal settings and modes of learning. Today, curriculum has also become an increasingly powerful tool to restore learning opportunities in crisis and post-conflict contexts for both children and adults.

As the specialized United Nations agency for education, UNESCO has been entrusted with leading and coordinating the implementation of SDG4 and the implied global Education 2030 Agenda. In the framework of the overall strategy of UNESCO's Education Sector, the International Bureau

of Education (IBE-UNESCO) plays a key role in promoting and supporting curriculum development worldwide.

Member States are increasingly requesting UNESCO's assistance to address the challenges of the 21st century and to design effective teaching and learning strategies to respond to the needs of all learners.

With its wealth of experience and specialized knowledge of curriculum development, the IBE is well positioned to contribute to UNESCO's action to pave the way towards inclusive and equitable quality education on the road to 2030.

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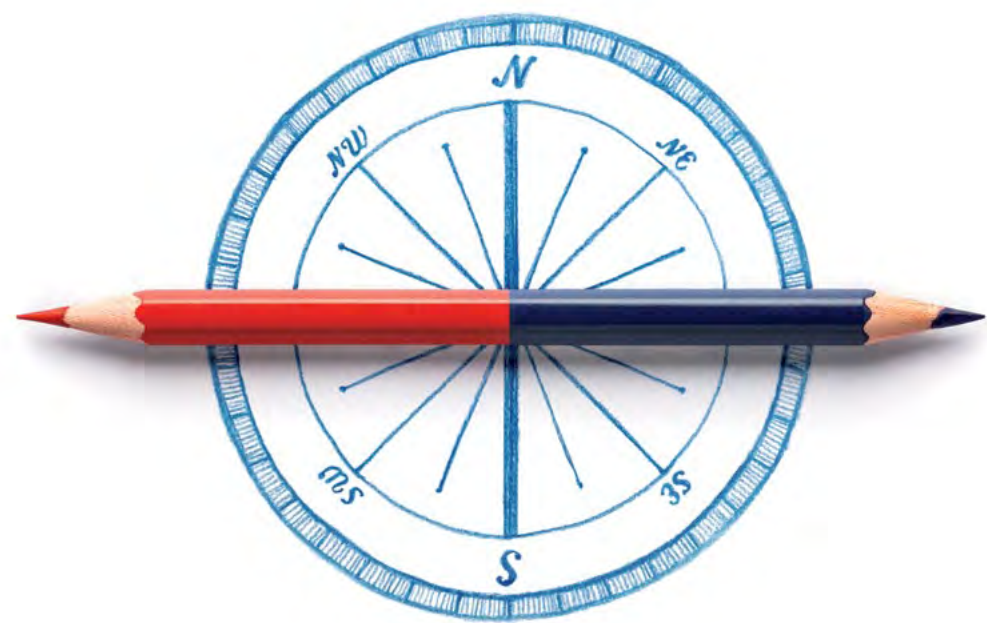
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# LEADING THE FUTURE *of* CURRICULUM

A REVIEW

*of*  
2016/2017

*by*  
**Mmantseta Marope**  
Director of the IBE



*Only two years after the adoption of the 17 Sustainable Development Goals (SDGs), with education captured in SDG4 and recognized as an enabler of the other 16 goals, the route towards an impactful implementation of SDG4 is taking shape, branded by the Education 2030 Agenda. For the global education community, there is still time to reflect on how to best walk the Education 2030 talk. Scars from some of the deepest wounds of the EFA agenda are still tender, and many people around the world are determined not to relive the past. The IBE is central to these reflections, not only because it is part of the global education community but also because anything in life, if it is important enough, will wind up in the curriculum; and the IBE is a global Center of Excellence in curriculum and related matters.*

# THE EDUCATION 2030 AGENDA

Examples abound. The transition from natural resource dependence to knowledge and technology dependent development is introducing skills for knowledge-based economies into curricula. Changes in the work place, ways of working, and tools of working are bringing into curricula new skills for employability, work and life. The information and technology revolution is bringing digital content and digital skills into curricula, including the digitization of curricula themselves. The scourge of HIV/AIDS brought the issue squarely into curricula. Globalization, climate change and concern for sustainability impelled curricula to include sustainable development and global citizenship education. The spike in violent extremism over the past half decade forced a return to the fundamentals of Delors' "learning to live together". In response, curricula had to include global citizenship education. The IBE launched an initiative on *Preventing Violent Extremism through Universal Values in Curricula*. The onset of Industry 4.0 forces all of us to question the readiness of education systems to prepare learners for this phenomenal change, and to ask what should go into curricula.

As would any significant wave of change, the Education 2030 Agenda beckons curricula to respond, and more importantly, to take initiative.



**Anything in life, if it is important enough, will wind up in the curriculum.**

## Walking the Education 2030 talk

Fortuitously, key markers of the Education 2030 Agenda – equity of quality, effective learning and improved learning outcomes, and relevance to sustainable development – align well with the core mandate of the IBE. This strategically positions the IBE to ‘walk the education 2030 talk’.

*Below:*  
Barry McGaw (University of Melbourne), and Anthony Mackay (Center for Strategic Education, Melbourne) joined Mmantsetsa Marope, IBE Director, in steering a high-level dialogue on future competences and the future of curricula. IBE Global Forum, Evian, March 2017.



### Engendering

education quality through the curriculum

Curriculum contributes to the quality of education in a fundamental way. It determines what will be learned, when, how, and by whom. It also guides key education processes that decisively determine the quality of education, learning, and ultimately, learning outcomes: *Teaching, learning, and assessment.*

During 2016/2017, the IBE continued to deepen the quality of curricula through its accredited training programs, technical assistance, and skills transfer. The number of countries that have benefitted from the IBE training courses reached a new peak at 78. Training programs are grooming leaders who will chart the future of curriculum in their respective countries. In 2016/2017 alone, graduates assumed positions of leadership in curriculum across 13 countries. A total of 23 countries received technical support from the IBE to improve the quality of their education systems through curricular reforms of diverse scope. Four countries revised their national curriculum frameworks, 7 started to reorient their curricula towards a competence-based approach, 3 began to integrate STEM education into their policies and curricula, 3 integrated global citizenship education into their curricula, 5 began to fully articulate ECCE into their curricular frameworks, and 5 joined peer learning sessions in preparation for revising their ECCE curricula. In early 2017, 18 countries converged in Seychelles to share best practices in ECCE and to chart future south-south, north-south collaborations.

### Brokering

cutting-edge research for deeper learning

Ineffective facilitation of learning can undermine the best curriculum. Learning is the final phase of the curriculum process; without it the best curriculum is just an impotent document that cannot improve learning outcomes. Yet, to judge from the feeble record of the EFA agenda, effective facilitation of learning still eludes the education community. Many education systems fail to register the level of learning outcomes to which they commit, and this is a threat to the attainment of the SDG4 targets. It is equally a threat to the other 16 SDGs, which depend on quality education for their attainment.

The IBE holds that a deeper understanding of how humans learn is desperately needed to better facilitate learning. In response, in 2016/2017 it began translating neuroscience research to better inform teaching, learning, and assessment practices. In collaboration with leading centers of learning sciences, the IBE set up a clearinghouse for the sciences of learning. These partnerships are growing. From the IBE alone, a minimum of 30 briefs covering key themes on the learning brain will be deposited annually in the clearinghouse. This translated knowledge is also integrated into the IBE’s training courses for teachers and curriculum specialists, placing them at the frontiers of knowledge and practice.

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best practices  
in ECCE

4

countries  
revised their  
national curriculum  
frameworks

7

countries started  
to re-orient their  
curricula towards a  
competence-based  
approach

23

countries  
received technical  
support

5

countries  
began to fully  
articulate ECCE  
into their curricular  
frameworks

3

countries  
integrated global  
citizenship  
education into  
their curricula

13

countries with  
graduates  
in leadership  
positions

5

countries joined  
peer learning sessions  
in preparation  
for revising their  
ECCE curricula

### Building

resilient ECCE systems

Compelling research evidence attests that ECCE is an indispensable foundation for effective and lifelong learning. The IBE is supporting equity of education quality and learning at this base, because effective learning is a cornerstone of effective curriculum implementation. The IBE ramped up its support to Member States to build resilient and effective ECCE systems. As already mentioned, 5 countries received support to fully articulate ECCE into their curricula frameworks, and 5 joined peer learning sessions in preparation for revising their ECCE curricula. A high point in this work was the ascension of the Republic of Seychelles into an IBE-UNESCO Best Practice Hub in ECCE; it is already providing technical assistance to other countries.

### Strengthening

the assessment of learning

Assessment processes collect evidence on whether learning is actually taking place and whether it is guided by the official/intended curriculum. Rightly or wrongly, learning outcomes are used as the ultimate evidence of education quality. They are used to judge and even rank the performance of countries, ministers, ministries, schools, teachers, and learners. Not surprisingly, what is assessed becomes ‘the curriculum’ by default. Assessments that are not aligned well with official curricula can derail what was intended. Ensuring the alignment and integration of curriculum, teaching, learning, and assessment is fundamental to improving education quality.

The IBE intensified its support to Member States’ assessment frameworks, taking an integrated approach to curriculum, teaching, learning, and assessment. Even more importantly, it prepared a normative paper outlining the transformation required to ensure that assessments are appropriate for competence-based curricula.

Improving assessment requires a deep appreciation of current national assessment frameworks, providing context to establish the future of curriculum, teaching, and learning. Through its e-platform, *In Progress Reflections*, the IBE is sustaining intellectual dialogue on assessment. It has also analyzed assessment frameworks across 70 countries to gain insights into what needs improvement. This work will continue into the intermediate future, not only to inform assessment, but also to support the monitoring of SDG4 targets on learning.

### Strengthening

the effectiveness of education systems

Effective education systems serve as enabling environments for effective curriculum implementation. The converse is also true. An excellent curriculum that is plunged into a dysfunctional education system will not provide the expected impact. Poor curriculum implementation spells poor education quality and poor learning outcomes.

During 2016/2017, the IBE strengthened its direct support to the capacity of education and learning systems. Nine countries developed interventions that address binding constraints to their equitable and resource-efficient delivery of quality and development-relevant education and learning.

### Ensuring

equity and inclusion through and in education

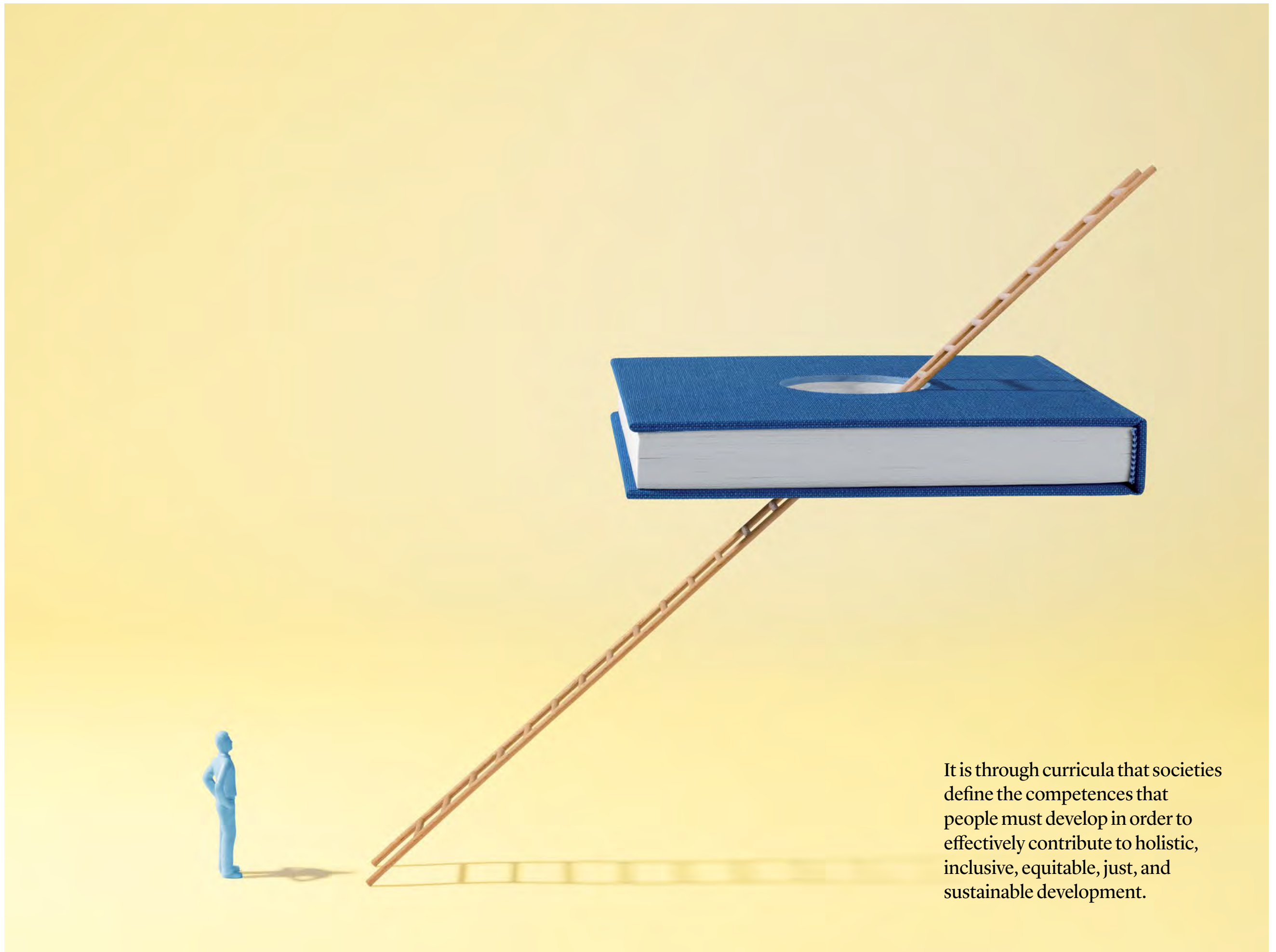
The IBE's intellectual and technical leadership in equity and inclusion is unmistakable. This continues to be a key theme for the *In Progress Reflections*, books, and resource packs. During 2016/2017, the IBE co-produced UNESCO-wide policy guidelines on inclusive education. It published a book titled *From Exclusion to Excellence: Building Restorative Relationships to Create Inclusive Schools*. It also published, in English and Japanese, *Reaching out to All Learners: A Resource Pack for Supporting Inclusive Education*; a *Resource Pack on Gender Sensitive STEM Education*; one issue of the Education Practice series titled *Teaching and Learning: Improving the Quality of Education for Economically Disadvantaged Students*; and one working paper on *The Role of Curriculum in Fostering National Cohesion and Integration: Opportunities and Challenges in Kenya*. These resources continue to guide technical support towards inclusive curricula. Eleven countries received technical support to make their curricula more inclusive. This is in addition to the countries that may be using IBE resources on their own. The resources were also used to continuously upgrade training programs.

### Sustaining

development relevance

During 2016/2017, the IBE reaffirmed its intellectual and normative leadership in its areas of competence. It produced a normative paper, *Rethinking and Repositioning Curriculum in the 21<sup>st</sup> Century: A Global Paradigm Shift* (Marope, 2017). Among other points, the paper calls for a global recognition of curriculum "as the first operational tool for giving effect to policies on the relevance of education to development". The centrality of education in enabling development across all spheres is universally acknowledged. But it is through curricula that societies define the competences that people must develop in order to effectively contribute to holistic, inclusive, equitable, just, and sustainable development. To say that an education system is not relevant to development is equivalent to saying that its curricula fail to enable learners to acquire required competences.

As part of its call for a paradigm shift, the IBE also articulated other support papers to complete a compendium of normative guidance on the integration of curriculum, teaching, learning, and assessment within a competence-based approach: *Competences for the Fourth Industrial Revolution*:



It is through curricula that societies define the competences that people must develop in order to effectively contribute to holistic, inclusive, equitable, just, and sustainable development.

*A Global Reference Point for Curricula Transformation* (Marope, Griffin, and Gallagher, 2017); *Transforming Teaching, Learning and Assessment for Competence-Based Curricula* (Griffin and Gallagher, 2017); and *Creating Enabling Systemic Environments for Effective Implementation of Competence-based Curricula* (Marope and Gallagher, 2017).

Sustaining the development relevance of curricula in the context of fast and constant change is a challenge. Moreover, Industry 4.0 is an unstoppable accelerant not just to the pace of 21st-century change, but also to its complexity and velocity. I 4.0 is described as a technological revolution whose velocity, scale, scope, complexity, and transformative power is unlike anything humankind has experienced before (Schwab, 2015).

On the other hand, if not well managed, efforts to keep curricula perennially relevant and contextually responsive carry their own risks. Curricular reforms can induce disruptive instability when they do not allow changes to take root and have an impact before the next reforms arrive. Reforms can – and often do – lead to curricular overload as instrumentalist elements begin to crowd out the core function of education: learning. First and foremost, this core function is to create effective lifelong learners agile enough to adapt to contextual changes and to change their contexts as the need arises. The quest for responsiveness can make curricula that are susceptible to special interests and even bipartisan politics, or that create merely a façade of transformation.

All these risks acknowledge the reality of our time: that the already short innovation cycles of the 21st century are getting shorter. Curricula are challenged not only to respond, but also to actually lead change and innovation. This seriously challenges not only the content of curricula but also the management of reforms and/or transformation processes.

The normative guidance from the IBE balances the quest for relevance with the need for stability. Furthermore, the IBE has begun to establish a global observatory with the capacity to look ahead and anticipate curriculum at the supra level of the world. The work of the observatory will inform curricular reforms at the macro level of countries; the meso level of states, provinces, and districts; the micro level of schools, and the nano level of teachers and students. The guidance will also include tips on how to sustain contextual responsiveness while safeguarding core functions. Overall, the design, development, and implementation of curriculum that we witnessed in the 20th century will simply not cut it in the era of I 4.0 and beyond. Being ready for the future is imperative.

## A focus

on sustainable peace

Sustainable development is impossible without sustainable peace. As the IBE supports the development- relevance of curricula, it is attentive to its

**Sustainable development is impossible without sustainable peace.**

**As the IBE supports the development relevance of curricula, it is attentive to its role in supporting sustainable peace.**

role in supporting sustainable peace. This role is anchored in the constitution of UNESCO, which recognizes that “since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed”. Defending peace means touching minds.

Through its promotion of equity and inclusion, the IBE promotes global peace. More directly, in 2016, the IBE launched an initiative on the *Prevention of Violent Extremism through Universal Values in Curricula*. In partnership with the Republic of Azerbaijan, the IBE is also promoting multiculturalism as a way to a prosperous, fulfilled, peaceful, just, and reconciled future (see article in this issue). In collaboration with the Asia Pacific Center of Education for International Understanding (APCEIU), the IBE is also supporting countries as they fully integrate global citizenship education into their respective curricula. A close watch is on Uganda, Colombia, Cambodia, and Mongolia to emerge as IBE-UNESCO Best Practice Hubs in global citizenship education.

The IBE also worked with neuroscientists and other scholars to determine the origins of social prejudice



Above:  
Smiling school kids  
in Kuala Lumpur,  
Malaysia.

and identify ways to combat it. In this issue of *In Focus*, Allison Skinner and Andrew Meltzoff inform us that social prejudice creeps into the minds of our children as early as preschool age. The take-home message is that it can NEVER be too early to push back on the precursors of violent extremism. Aluta continua!

Conrad Hughes takes us through the prevention of prejudice at the secondary school level. Then, we see a glimmer of hope, from Ambassador Vaqif Sadiqov of the Republic of Azerbaijan. He tells of his country’s history and how it is actually possible to live together harmoniously in peace and justice. Then a final word of wisdom from His Excellency the President of the Republic of Azerbaijan: Multiculturalism is not a challenge. It is actually an asset!

## Reasserting

our global convening power

Since its inception in 1925, the IBE has enjoyed immense global convening power. This was consolidated in 1929, when it became the first intergovernmental organization in education. The heritage lives on! In its role as the global norm and standard-setting institu-

tion for curriculum and related matters, global credibility and legitimacy are core currency.

The normative instruments mentioned above are not products of the IBE alone. They were produced with invaluable inputs from global thought leaders on the future of curriculum who were convened twice by the IBE during 2017.

They also benefitted from the generous inputs of leaders of national curriculum centers who constitute the IBE’s Global Curriculum Network (GCN), whose membership reached 150 countries in 2017.

The IBE also convened or co-convened several key forums to share best practices and to promote collaboration around its flagship programs. In October 2016, in New Delhi, it convened 15 countries on *Adopting a Technology Perspective to Education and Learning*. Early in 2017, with the Seychelles Institute for Early Childhood Development, it co-convened 18 countries to share best practices under the theme *Building Resilient ECCE Systems: What will it take?* It also convened 3 Sahel countries to share experiences from a joint project on *Reading and Writing in the Early Grades*.

# Visibility on world stages

2016/2017 saw the IBE on many world stages, sharing its expertise and advocating for its programs. The IBE was featured in many conferences and forums, delivering keynote addresses, opening addresses, and taking part in high-level round tables and plenary sessions. The pinnacle was the IBE Director's summation of the 2017 Global Debate on Education Fast Forward, during the Education World Forum. The year also saw the IBE in a Presidential Highlighted panel at the Comparative and International Education Society (CIES) conference, and at high-level roundtables at the 2017 Education and Business Summit and Global Thought Leaders' Consultations on the Future of Curriculum.

## Publications and other resources

The IBE's work in knowledge creation, brokerage, and management is what keeps it at the frontiers of its field. The IBE produced a range of resources in 2016/2017.

### 2016

- **Prospects vol. 177**, Assuring quality education and learning: Lessons from Education for All.
- **EPS 28**, Guiding principles for learning in the 21<sup>st</sup> century.
- **EPS 27**, Task, teaching, and learning: Improving the quality of education for economically disadvantaged students.
- **Latin American edition of The Nature of Learning**: Using research to inspire practice [La naturaleza del aprendizaje: Usando la investigación para inspirar la práctica].
- **Reaching out to all learners**: A resource pack for supporting inclusive education.
- **Addressing intolerance and extremism** through universal values in curricula.
- **30 briefs on neuroscience and learning** (on topics as varied as prevalent neuro myths, neuroplasticity, numerical processing, and the implications of these issues for learning, teaching and assessment).

### 2017

- **Prospects vol. 178**, Brain science, education, and learning: Making connections.
- **Prospects vols. 179 & 180**, Two special issues on learning how to read, and literacy and the Sustainable Development Goals (in preparation).
- **Rethinking and repositioning curriculum in the 21<sup>st</sup> century**: A global reference point for curricula transformation.
- **Teaching, learning and assessing competence-based curricula**.
- **Creating systemic enabling environments** for the implementation of competence-based curricula.
- **Prospects 181**, Special issue on human rights and curriculum (in preparation).
- **Learning to educate**: Proposal for the reconstruction of education in developing countries.
- **From exclusion to excellence**: Building restorative relationships to create inclusive schools.
- **Inclusive assessment**.
- **Teaching and learning to read in a multilingual context**: Ways forward for three sub-Saharan African countries (Burkina Faso, Niger, Senegal);
- **Teaching and learning literacy in the 21<sup>st</sup> century**: Lessons from around the world (in preparation).
- **A resource pack** for gender-responsive STEM education.

## Broadening access to IBE's knowledge products

The IBE uses multimedia to make information and cutting-edge knowledge on curriculum available and accessible. Among our efforts are consultation forums, refereed e-consultations, bi-weekly alerts, an online collection of national curricula, IBEDOCs, our historical collection of textbooks, our revamped website, multiple postings on blogs and social media—and of course this annual magazine. In the past year, the IBE used 36 bi-weekly alerts and 6 digests to disseminate the latest developments in curriculum around the world. It processed 68 national curricula to add to the Online Curriculum Collection, a rich resource of 1,500 curricula from 106 countries. To IBEDOCs, 110 new records were added, for a total of 1,316. The IBE Historical Textbook Collection added 700 more textbooks and, except for the fragile ones, all books were digitized, making them more accessible.

Meanwhile, the IBE blog disseminated emerging knowledge on critical and current issues in curriculum; by May of 2017, it had 1,400 readers per month. The IBE Facebook page had 7,793 reads in 2016, and 6,276 by May of 2017, with 1,595 likes. Visits to the new website more than doubled, from 127,000 in 2014 to over 300,000 by mid-2017. The Director had 3,132 Twitter

followers by mid-2017, up from 607 in 2015. For the IBE account, that number rose from 500 to 2,693. This annual *IBE In Focus* continues to communicate and disseminate the work of the IBE in a popular journalistic style, on line and in print. It received glowing reviews and prestigious placements, among them the Protocol Lounge in Geneva, First and Business Class Lounges of Swiss International Air Lines and South African Airways, and the VIP lounges of La Réserve Hotel in Geneva, Montreux Jazz Festival, and Monaco Yacht Club.

Most importantly, the IBE has established itself as a clearinghouse for the sciences of learning and for the development relevance of curriculum. Combined, these media improve access to information and cutting-edge knowledge in the IBE's fields of competence.



**A drive for strategic partnerships and collaborations**

Strategic partnerships are the key to the IBE's success. The past year saw clear growth in prestigious intellectual partners, and the launching of senior fellowships, consistent with the IBE's role as a center of excellence and as an intellectual leader in its areas of competence. It also added several partners that are critical for ensuring the credibility and global ownership of the IBE's normative instruments. Of particular importance has been the growth in the membership of the GCN and the convening of global thought leaders on the future of curriculum. The IBE has also started to establish Best Practice Hubs based around partner countries that excel in the IBE's flagship programs. Short-term collaborators have also increased within UNESCO structures and across sister organizations.

**Join the IBE Partners and Collaborators**

**Best Practice Hubs**

— The Republic of Seychelles [ECCE]

**The IBE's Global Curriculum Network**

— 150 countries

**The Global Observatory for Curriculum**

**Senior Fellowships**

— IBE-UNESCO/IBRO Science of Learning Fellowship

**UNESCO HEADQUARTERS**

— Teacher Task Force for Education 2030  
 — Division of Relations with Organizations and New Partnerships  
 — Division for Teaching, Learning, and Content  
 — Global Education Monitoring Report

**REGIONAL & FIELD OFFICES**

— Kenya  
 — Myanmar  
 — Qatar  
 — Lebanon  
 — Thailand

**INSTITUTES & CENTERS FOR EDUCATION**

— UNESCO Institute for Statistics (UIS)  
 — International Institute for Education Planning (IIEP), Buenos Aires  
 — Asia-Pacific Center of Education for International Understanding (APCEIU)  
 — Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP)

**Academic and Professional Institutions**

— Dar es Salaam University, Tanzania  
 — Kaunas University of Technology, Lithuania  
 — Hamdan Bin Mohammed Smart University, UAE  
 — Catholic University of Uruguay, Uruguay  
 — Queensland Brain Institute, University of Queensland, Australia  
 — Institute for Learning & Brain Sciences, University of Washington, United States  
 — International Brain Research Organization (IBRO)  
 — Institute for Cultural Diplomacy, Germany  
 — National Center for Education Development, Kuwait  
 — Gulf Arab States Educational Research Center (GASERC)  
 — National Council of Education and Research Training (NCERT), India

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 — Monaco Yacht Club  
 — Protocol Service, Geneva Airport





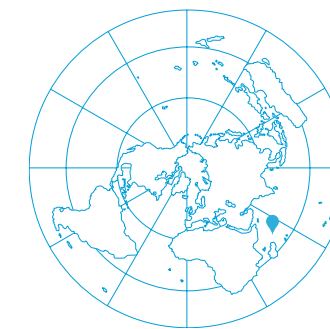
# B

## BEST PRACTICE COUNTRIES

The IBE fosters knowledge exchange and sharing of good practices across its partnerships. What can one learn from the remarkable achievements of Seychelles in early child care and education? How about closing the gender gap in STEM education in Malaysia? Or multiculturalism as a lifestyle in Azerbaijan? Read on!



BEST  
PRACTICE  
COUNTRIES



POINTERS  
*from*

# Seychelles

From humble  
beginnings to a  
Best Practice  
Hub

*by*  
Macsuzy Mondon  
Shirley Choppy

Did you know that Seychelles, an archipelago of 115 islands in the Indian Ocean, is among the world leaders in early childhood and care education (ECCE)? Formally recognized by the IBE as a Best Practice Hub, Seychelles is committed to ensuring holistic development of children, starting even before they are born. How and why has Seychelles made ECCE a priority?





I am happy to note that our efforts, achievements, and progress have been recognized at both national and international levels. However, no matter how important quality is, we have to bear in mind that there is never enough of it, so we should ensure that it pervades our ECCE system because it matters a great deal in the early years of our young children's lives, if we are to give them all a strong and winning start. No child should be left behind! By fulfilling the rights of all young children and by nurturing their potential and well-being, we are building the wealth of our nations.

**Danny Faure**  
President of Republic of Seychelles

# R

Without quality ECCE services, people have lower chances of employment, lower productivity, and lower earnings. And the country has lower rates of economic growth, more intergenerational poverty, and more social maladjustment, including high incarceration rates. And the list goes on.

Researchers have produced compelling evidence about the multiple benefits of quality Early Childhood Care and Education (ECCE). ECCE offers many comprehensive services, including health and nutrition, education, and social, emotional, and legal protection for children from infancy to 8 years of age, along with parenting education for future and current parents (Marope and Kaga, 2015). Research evidence shows that when countries do not provide quality ECCE services to children in that age range, the children, and the country itself, face multiple risks. These risks include poor health into adulthood, learning difficulties, high rates of repetition and school dropout—and a lifetime without the skills one needs to become employed and to live life well. Without quality ECCE services, people have lower chances of employment, lower productivity, and lower earnings. And the country has lower rates of economic growth, more intergenerational poverty, and more social maladjustment, including high incarceration rates. And the list goes on.

For all these reasons, equitable provision of quality and holistic ECCE services has remained a high priority in all key global policies and action frameworks. Examples include the UN Convention on the Rights of the Child (1989), the Millennium Development Goals (2000), the Education for All Agenda (1990, 2000), the Moscow Framework for Cooperation and Action (2010), the World Education Forum (2015), and the Sustainable Development Goals (2015). ECCE is also mentioned or at least implied in many national policy statements, including those made when the countries sign UN declarations, constitutions, and sector policies and programs.

However, most countries still find it a daunting challenge to ensure universal access to quality ECCE services, especially for disadvantaged communities. In these communities, people face limited access to core ECCE services such as pre- and post-natal care, nutrition, health and sanitation, crèches, and pre-primary education. And other troubling conditions exist: neglect, poor parenting, and lack of political support.



**Macsuzy Mondon**  
Designated Minister  
& Chairperson of  
High-level ECCE  
Policy Committee,  
Seychelles



**Shirley Choppy**  
Chief Executive  
Officer, Institute  
for Early Childhood  
Development,  
Seychelles

## Humble beginnings

When countries were being challenged to deliver quality ECCE services to all children, Seychelles was no exception. But the country did have some strengths on which it could build a holistic, effective, and equitable ECCE system. It had implemented universal access to primary schooling, and quite a high percentage of children were participating in pre-primary education. Healthcare was free for all. Other key programs were fairly institutionalized. These included maternal and child health in the health sector, partial education provision for preschoolers in the education sector, broad child protection services in the social sector, and periodic community programs for school children.

However, the country still faced critical impediments as it worked to develop a progressive ECCE system. The primary challenges were real, and complex, though sometimes subtle. Overall, ECCE provision had been neglected, more by omission than on purpose. One clearly omitted, but crucial, element was a common view or concept of ECCE that could unite all providers around a common purpose and agenda. Moreover, the resources allocated for ECCE were neither adequate nor equitable.

Most staffers were unqualified, so the learning programs were weak and irrelevant. Although healthcare had been available, the quality of services was varied, inconsistent, and not thoroughly supervised. Only limited interventions were available for children with developmental delays. Parenting programs were very restricted in coverage, and the school nutrition program faced serious difficulties in implementation. Planning for the child protection system was poor and no programs were targeted to children in the early years. No priority was placed on providing day care facilities across communities; this negatively impacted access and effective participation. Collectively, the prevailing challenges could be grouped into three categories.

### **Salience**

As more and more scientific and economic evidence demonstrates the developmental power of ECCE, the challenge in Seychelles was to reduce the knowledge gap and raise the level of awareness of ECCE among practitioners, professionals, politicians, community members, and the general public. It was crucial to draw attention to ECCE, to advocate for it, and to create a political and academic environment, includ-

ing greater public knowledge, that would emphasize the importance of holistic early childhood development that encompasses the aspects of health, nutrition, stimulation, and protection.

### **Integration**

Given the multi-dimensional nature of ECCE, various sectors had tended to offer ECCE services in isolation. Further, some aspects of ECCE services remained hidden among the policies and programs in various sectors; this made it difficult for ECCE to stand out as a holistic service in its own right. Aspects of ECCE services were fragmented at best; at worst, they could actually undermine each other, albeit unintentionally. The country desperately needed an approach that operated better both within and between sectors to pull together the contributions of different sectors and improve the overall impact of holistic early development for Seychellois children. Locating an ECCE center in any ministry, including those of education and health, was controversial and not likely to lead the different sectors to contribute in a balanced and effective way. It was simply a national imperative to harmonize and coordinate efforts, programs, and services across sectors.

### Monitoring

To sustain and continuously improve ECCE provisions requires constant monitoring and periodic evaluation. The lack of such functions made it very difficult to deliver services and implement programs. On the whole, data were not being used adequately to set a baseline for assessing the impact of projects, in order to communicate progress. The country needed monitoring research to develop tools for measuring development outcomes and to improve indicators of quality; it also needed a robust monitoring mechanism at all levels of the system to provide feedback on performance and achievements, and to assess service conditions. Monitoring was also vital to ensure that standards would be adhered to and regulations followed. This was a prerequisite for supervisory work and accountability reporting, and it needed the support of a strong statistical and data management system.

## The turning point

The state of ECCE in the country had always been a source of discomfort among the few experts in the field. They clearly saw the need for a reform process that would address the concerns, constraints, and inconsistencies—and the need to unify the different agencies and move the country’s ECCE agenda forward. But the real turning point occurred in Moscow in 2010, when our then Right Honorable Vice President, Danny Faure, took a leadership role in the first UNESCO-led World Congress on Early Childhood Care and Education (WCECCE). As one of the core political leaders of the WCECCE, Rt. Hon. Danny Faure had the last word on the WCECCE. In his closing speech, he implored all the 130+ participating countries to go forth and make the conference document, the *Moscow Framework for Action and Cooperation: Harnessing the Wealth of Nations*, a reality for all the world’s children. Most importantly, he promised to go back home and lead by example. Indeed he did!

## Toward a Best Practice Hub

Under Rt. Hon. Danny Faure’s inspiring leadership, several key factors were—and still are—pivotal in turning ECCE around in Seychelles: political leadership, policy direction, institutional structures, national action planning, collaborative partnerships, and policy research.

### Political leadership

To chart the course and set Seychelles on a successful path towards using best practices, political leadership was the most important factor. It was crucial to have political commitment and confidence in a leader who champions ECCE. Rt. Hon. Danny Faure honored the country’s pledge by setting up a multi-sectorial National Steering Committee for ECCE, almost immediately upon his return from Moscow. This committee was instrumental in defining the policy direction for ECCE in Seychelles through the development of the Seychelles Framework for Early Childhood Care and Education.

### Policy direction

The framework is an overarching policy document that involves not only ECCE sectors but also “all other stakeholders in ECCE”. It sets out and articulates a united vision: “a winning start in life



It was crucial to have political commitment and confidence in a leader who champions ECCE. Rt. Hon. Danny Faure honored the country’s pledge by setting up a multi-sectorial National Steering Committee for ECCE, almost immediately upon his return from Moscow.

Collaboration is the key factor in the process of transforming ECCE in Seychelles. It demands professional and dynamic interactions with individuals, sectors, organizations, and international agencies, particularly IBE-UNESCO and the World Bank.

for all children in Seychelles: a shared commitment”. It outlines 8 guiding principles: child-centeredness, parental engagement, collaborative work, long-term sustainability, active learning, training and professional development, accountability, and cultural appropriateness. It identifies thematic priorities, including policy realignment, community provisions, child protection, and quality standards. It proposes a renewed governance structure with a high-level ECCE policy committee and sectorial teams working toward technical implementation. It emphasizes that monitoring and data management are necessary for successful implementation and effective reporting.

#### **Institutional structure**

The implementation demands of the framework greatly altered institutional arrangements for ECCE, and led to the establishment of the Institute of Early Childhood Development (IECD) in 2013. The IECD is an empowered semi-autonomous body that provides strategic direction and leadership for ECCE. It has the legal mandate to promote, advocate for, regulate, and coordinate ECCE activities. This innovation drove the ECCE agenda nationally, attracted international in-

terest, and began to shape the attitudes of professionals, parents, and the general public.

IECD has become the focal point for multi-sectorial coordination and exchange. It is an academic institution where research is acknowledged. It is an entity for professional development activities. It runs advocacy campaigns for children and promotes and propagates children’s work. IECD’s ECCE forums have become a successful vehicle for disseminating information and encouraging professional dialogue and public interaction. The biennial ECCE conference, the IECD’s flagship, has become a national event for sharing progress and achievement, highlighting challenges, and promoting accountability.

#### **National action planning**

To speed the implementation of the policy framework, the IECD started, and led, a national action planning process. The National Action Plan became a binding document for the four main ECCE sectors. It covers many sectors, and encourages wide participation and outreach.

The plan has also become a document for learning about ECCE. It allows actors in all sectors to

clarify their plans and projects, share ideas, and cooperate within and across sectors. Within the plan, people have tried out a multi-level approach to respond to the complex challenges of integrating ECCE across institutional divides. Thus, sector-level projects or programs in ECCE are incorporated into the plans of the relevant ministries and departments.

The plan provides strategic directions for selected key priority areas in the framework. For example, it places a sharp focus on a much-neglected area in ECCE: provisions for children aged 0 to 3. These responsive projects provide a rich field of experience that shapes the responsibilities of participating sectors and expands their roles. Projects such as suitability checks for child minders are extending the child protection role of the social sector. Another project draws on the facilities of community centers to provide a stimulating early learning environment for children in childminding establishments; it is both expanding the role of community workers and extending childminding provisions.

The plan has become a reference document for sectorial in-

terchange and interaction. The Seychelles ECCE Terminology Directory is one example of collaborative work and cooperation. One critical impact of the plan is the collaboration that has been extended nationally and internationally.

#### **Collaborative partnerships**

Collaboration is the key factor in the process of transforming ECCE in Seychelles. It demands professional and dynamic interactions with individuals, sectors, organizations, and international agencies, particularly IBE-UNESCO and the World Bank. The IECD has been very successful in nurturing this process.

One interactive task the IECD had to undertake was establishing a positive working relationship with ECCE sectors. In evaluating the National Action Plan, researchers found that 90% of technical team members from the four ECCE sectors believed that positive working approaches had developed, at least to some extent, as the plan was being implemented. The pivotal role that IECD plays in coordinating the plan has evolved, through academic working sessions, supportive committee meetings, and the development of monitoring structures. The evaluation

report pointed out two major impacts of the plan: it has promoted multi-level collaborative action and developed effective multi-sectorial coordination.

The quality of the relationship is also important. Two important ingredients in the collaborative efforts are interpersonal consideration and a professional approach (Choppy, 2015). Also crucial is the element of facilitation: technical teams feel they are being supported by IECD, and they recognize that the IECD inputs are valuable. All parties partner when the IECD works alongside team members to implement a specific project and to learn from their expertise. These processes—subtle and complex but rewarding—have guided the IECD in its practice and moved ECCE forward.

#### **Policy research**

Within the context of the ECCE system the power of research is being harnessed to instigate change. Research findings are beginning to clarify situations, to point to new directions, and to suggest improvement strategies. Research has also been a useful tool to strengthen coalitions among sectors and other partners, and to reinforce monitoring and reporting.

This is best illustrated by one of the historical research studies conducted by the IECD, *The National Childminding Study*. Its emphasis was on improving ECCE provisions for children 0 to 3 years old; at that time, about 75% of children in that age range were being catered for in unregulated home-based establishments. The study developed an experimental research model to establish the status of the child care services being offered. Another aim was to diffuse the study’s findings through policy briefs that would engage relevant sectors and organizations in consultative dialogue. As convincing evidence from the briefs targeted relevant organizations, it became possible to engage diverse sectors in directly contributing to the developing standards for child care services—standards that those actors became involved in implementing and monitoring. Thus, the research model not only provided policy direction but also propelled ECCE-related organizations into action.

Research has also been widely used as a tool for other functions: monitoring and reporting, providing policy advice, and advocating change. For example, an on-going nationwide study that monitors developmental screen-

ECD indicators in Seychelles, with regional comparisons

Source: World Bank, 2013 comparisons



2007 - 2011

**INFANT MORTALITY**

Deaths per 1,000 live births

SEYCHELLES

12

KENYA

55

MAURITIUS

13

TANZANIA

50

UGANDA

63



2007 - 2011

**UNDER-5 MORTALITY**

Deaths per 1,000 live births

SEYCHELLES

14

KENYA

85

MAURITIUS

15

TANZANIA

76

UGANDA

99



2007 - 2011

**MATERNAL MORTALITY RATIO**

Deaths per 100,000 live births

SEYCHELLES

39

KENYA

490

MAURITIUS

22

TANZANIA

450

UGANDA

440



2010

**GROSS PRE-PRIMARY ENROLLMENT RATE**

36-59 months

SEYCHELLES

102%

KENYA

52%

MAURITIUS

96%

TANZANIA

33%

UGANDA

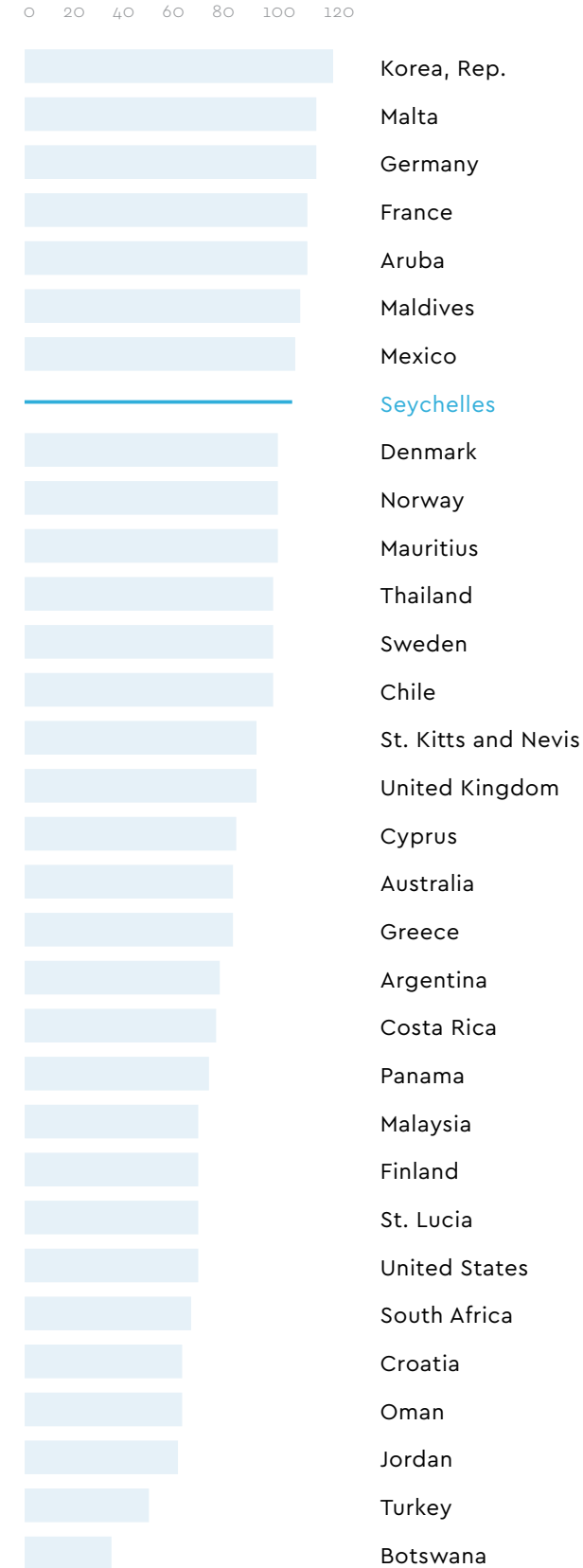
14%

**What has been the impact?**

Here we offer three figures that indicate the impact of the ECCE work in Seychelles. The first figure compares some early childhood development (ECD) indicators for Seychelles with those of other nations in the region. The second figure illustrates access to essential health care for mothers and young children in Seychelles. The third figure shows the country's pre-primary enrollment rates, which are higher than those in several developed nations.

**Pre-primary enrollment rates in Seychelles and other countries**

Source: World Bank, 2014



**Level of access to essential health services for young children and pregnant women, Seychelles, 2015**

Source: Ministry of Health, 2015

100%

**1-YEAR-OLD**

children immunized against DPT

100%

**CHILDREN BELOW 5**

with diarrhea receiving oral re-hydration/continued feeding

100%

**CHILDREN BELOW 5**

with suspected pneumonia receiving antibiotics

100%

**BIRTHS**

attended by skilled attendants

99%

**PREGNANT WOMEN**

receiving prenatal care (at least once)

100%

**HIV+**

pregnant women/exposed infants receiving ARVs for PMTCT



ing will gather useful information on child development outcomes. Research activities are incorporated into most of the projects in the National Action Plan, in order to monitor the project trajectory and develop indicators, and to measure the effects of programs and interventions. A national survey on ECCE has generated much-needed information on professional and public views of ECCE, which can now be used for advocacy and education campaigns.

## Reflections

### BEST PRACTICE HUB

IBE-UNESCO formally recognized Seychelles as an IBE Best Practice Hub for ECCE. This provides Seychelles with great impetus to improve its level of programs and refine service provision, as well as to build its human resource capacity and make qualitative changes. All these efforts will sustain its excellence in ECCE.

As part of the global challenge to improve ECCE provisions, Seychelles has made rapid progress in reforming and transforming its ECCE system to make it more sustainable and resilient. It has been a journey of determination, perseverance, and grit. At the heart of the change were the nationwide efforts to garner skills, expertise, and knowledge, along with commitment to participate in the change process. High-level political endorsements were the first step in advancing the ECCE agenda. Then the national policy framework established the vision and provided the impetus for change; since a leading agency was established by law, it has worked towards integration and coherence. Selected priorities are being addressed through the National Action Plan, strong collaborative structures have been built, research activities have led to policy dialogue forums, and a strong focus has been placed on monitoring.

IECD, collaborating with national partners and supported at the ministerial level, has played a dynamic role in reinforcing, supporting, and refining the ECCE system in Seychelles. To ensure that the system will be sustainable and resilient, IECD has proactively sought additional



support from the private sector and from international partners, mainly in the form of funding and technical assistance. It carried out consultative sessions on ECCE projects with a range of organizations to capture interest; it signed memoranda of understanding, mobilized funds, and arranged technical assistance from IBE-UNESCO and the World Bank. Funding, as always, is a fundamental challenge to making reforms, sustaining them, and consolidating change. Funding for ECCE is being supported by local and international partners, through advocacy campaigns, private and public sponsors, donor agencies, and convocations of experts.





Tariq Al Gurg, Chief Executive Officer of Dubai Cares

## TARIQ AL GURG

On the Power of Education  
to Eradicate Poverty

Tariq Al Gurg was appointed as Chief Executive Officer of Dubai Cares in 2009, and has since been responsible for strategically defining and leading an organization that is dedicated to providing children in developing countries with access to quality education. Al Gurg has enabled Dubai Cares to contribute to the evidence base, leverage funding, and invest in strategic relationships that have supported the development of worldwide interventions such as the UN Secretary General's *Global Education First Initiative* and Brookings Institution's *Learning Metrics Taskforce*.

**Over the last few years, Dubai Cares became an outstanding power player in philanthropy, focusing its programs on improving education, with the overall goal of eliminating poverty globally. What really sets Dubai Cares apart from other organizations in the field?**

Our founder, His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, believes in the power of education to eradicate poverty. He recently launched the Mohammed Bin Rashid Al Maktoum Global Initiative to make an impact on the world through humanitarian, developmental, and community work. Based on Al Maktoum's vision and guidance, and in line with his new initiative, Dubai Cares continues to invest in innovative solutions to address global education challenges; its overall aim is ensuring that children flourish, and in turn initiate long-lasting change in their communities.

Over the past 10 years, Dubai Cares programs have reached 16 million beneficiaries in 45 developing countries, helping combat poverty and malnutrition through education. This integrated and holistic programming addresses both the barriers to accessing education and the issue of quality of education. By combining it with a rigorous framework for research, monitoring, and evaluation, we aim to maximize the impact of our programs and ensure that our investments make a difference.

As a private philanthropic foundation, we can be more flexible and agile than many traditional donors. In addition, we like taking risks. This shows in our programming approach: we design innovative pilot programs, and rigorously collect evidence during their implementation. Then, if they prove successful, we advocate for national governments to adopt them and take them to scale through bi- and multilateral mechanisms.

Dubai Cares also invests significantly in research and generating evidence. We are currently funding several ongoing randomized control trials, and have recently launched a US\$10 million research envelope called E-Cubed. It aims to generate evidence for education in emergencies, a sector that is notoriously data-poor because it is so difficult to collect data in emergency and crisis contexts. Most of our programs are based on evidence and we seek to have the maximum possible percentage of our programs contribute to the evidence base.

**Dubai Cares reshaped the contours of your professional life. How did your former experience as a successful banker inform your current work in philanthropy?**

Throughout my banking career, which lasted from 1996 to 2008, I always had a personal tendency to carry out charity and development work. In 2006, I was part of a group of people who co-founded the UAE Genetic Diseases Association (GDA); I ran a fundraising campaign to support its mandate. On a personal level, I feel that charity runs in my blood. Therefore, when I was given the opportunity to lead Dubai Cares as its chief executive officer, I did not think twice about accepting this offer.

The first thing I did on joining Dubai Cares was to research the progress of the organization since it was started. That research showed me the task ahead: not only manage the entire organization and oversee the design of its programmatic interventions in developing countries, but also utilize my banking skills to manage the hundreds of millions of dollars that have been raised to fund these projects. Based on that, I made the decision to join Dubai Cares for the long haul. It was a fairly easy decision to make once I looked at the overall picture and the deep personal satisfaction I would gain in making a difference in children's lives around the world.

**From the minute your career with Dubai Cares took off in 2009, you have been moving at warp speed. It is mind-boggling to think of the number of major projects emanating from your office. You are constantly on the move, travelling, giving speeches, interacting one-on-one, or initiating, negotiating, and supporting projects. How do you juggle your leadership work, family life, and any other responsibilities?**

I am passionate about my job, so I try to maintain a healthy balance between my work and my family. As chief executive officer of Dubai Cares, I spend about half of my time in the office, and the rest travelling for work. My travel schedule is usually quite hectic as I travel to our beneficiary countries on field visits in order to assess programs, to meet partners, government officials, and community members, and to understand the situation on the ground. In parallel to Dubai Cares' growth in the international sphere, I also attend high-level international meetings that set the agenda for global education.

My free time is largely dedicated to my family. I think it is important for my children to understand what I do; therefore, I have many photos of me with children in the field, which I share with my daughters. My eldest daughter regularly checks the photos and asks me questions about the various countries we travel to, activities we organize, the poverty in countries where we operate, and how we help children there. She is aware of poverty in developing countries and the negative impact it has on children.

I rarely have the opportunity to meet with my friends, but I do my best to catch up with them sometimes over the weekend.

**You have an incredible charismatic presence, with your heart on your sleeve, unconstrained in your view of what's possible in the world, but also possessing an innate clarity when it comes to the intellectual purpose of your work. How do these personal qualities contribute to your professional accomplishments?**

Whether in my country or on field visits to beneficiary countries, international conferences or meetings, there are three activities I always engage in listening, communicating, and taking action.

Listening is key; the more we listen the more we are informed. When I meet people during my visits, I listen to the problems and challenges they are facing. I spend time with officials, stakeholders, peers, teachers, and even children to gain as much insight as possible.

Second to listening is effective communication. As the world is going through more emergencies than ever before, the funding for our sector has been falling.

Listening gives me the ability to express my thoughts based on first-hand research; therefore, I can speak with confidence about the importance of education in shaping future generations. I try to ensure that I communicate regularly with senior officials and key actors in the education sector to understand their needs and challenges and exchange ideas.

In short, leaders need to talk about education and ensure that it is on their agenda to ensure it is not neglected. For my part, I stress the importance of education whenever I can, and talk about how education can break the cycle of poverty for coming generations.

Finally, I believe in taking action. After listening, communicating, and understanding, I take the risk to develop new models and invest in research. I always try to focus on areas or sectors within education that are not receiving enough funding. As a reflection of this, for example, Dubai Cares has made significant commitments to education in emergencies in the past two years, and we have also boosted our support to small island states in the Pacific Ocean and in the Caribbean that are particularly vulnerable to the negative effects of climate change. I also go to countries where the education system is fairly good, but one of its components is still facing challenges such as gender inequality.

**No matter how much thought and effort you put in, you don't always anticipate all the risks that may**

*Below:*  
Dubai Cares field trip to Ethiopia (2011).

Dubai Cares is a UAE-based global philanthropic organization, working to improve children's access to quality education in developing countries. Launched in September 2007 by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and Ruler of Dubai, Dubai Cares expresses the UAE's commitment to achieving, by 2030, the United Nations Sustainable Development Goal (SDG) 4: ensure inclusive and quality education for all and promote lifelong learning.



**undermine the larger spirit of your work. Do you have any lessons to share?**

Given the large number of programs that we have implemented in over 45 countries, we do face challenges and risks when implementing our programs.

We usually come face-to-face with these challenges when we conduct our monitoring and evaluation (M&E) visits. For instance, during one such visit to a country, we found out that our program was not implemented as agreed. In another country, the partner had lowered the number of beneficiaries agreed upon without informing us—and had requested extra funding. All these situations put Dubai Cares in an embarrassing position, but our program managers have clear procedures to follow for risk mitigation and management, and we work hard as a team to ensure that our programs achieve their intended outcomes within the allocated budgets and timeframes. Regular communication with our partners and field visits to our project sites are key to our success. Therefore, we conduct as many field visits as possible, as we learn so much from them. We also strive to ensure that our partners are positioned as well as possible to deliver the changes we wish to see. Therefore, when we're selecting implementing partners, we focus on the capacities and capabilities of the people in the field so we can maximize the likelihood that our programs are delivered efficiently and in a timely manner.

**Nowadays, there is an increasing number of small-scale examples of generously financing endeavors that seem to make no sense according to classic investment horizons. Are you actively looking for game-changing thinking and thus embracing a risk-taking ethos to support innovative projects that might drive change?**

I believe that innovation is key in any industry. At Dubai Cares, we continuously seek out innovative ways of programming. We are implementing game-changing thinking, for example partnering with non-traditional implementers such as Sesame Workshop to deliver STEM education to girls in Mexico, and Sinfonia por el Peru to ensure the quality of education and learning for disadvantaged children in Lima through musical education.

Furthermore, Dubai Cares has funded a 3-year Home Grown School Feeding (HGSF) program in Ethiopia to improve the education, health, and nutrition of school-aged children across the Southern Nations, Nationalities, and Peoples' Region (SNNPR). To meet this goal, the funding was used to deliver an integrated program of Water, Sanitation, and Hygiene (WASH), HGSF interventions, and deworming treatments that aimed to reduce the prevalence of neglected tropical diseases, namely soil-transmitted helminths (STH) and schistosomiasis.

**Despite great intentions and certain successes, many philanthropic efforts are just not able to alleviate the crippling systemic problems facing**



**the developing world. How do you make sure your work is not palliative, but ultimately transformative?**

Dubai Cares is an organization working to provide children with access to quality education. Our focus is on education because we strongly believe that it is one of the most effective tools to break the cycle of poverty worldwide. Therefore, we are trying to transform the education systems in developing countries to make education a tool for children in defining their future and breaking the cycle of poverty. Our ultimate goal is to shape the future of today's children by educating them so they can positively influence and change the societies they live in.

To ensure that our programs are truly transformative, we invest in pilot programs and in research. In order to understand what really works and what can be scaled up to be truly transformative on a larger scale, we invest significantly in collecting evidence. We fund research, including randomized control trials which meet the highest standards as impact assessments in several of our programs. We do this particularly where a new model is being tested or where specific intervention modalities are being compared to try to understand which ones have the most impact and why. Only with robust evidence can we then go, together with our partners, to national governments and the international community to advocate for concrete change in the education system. In addition, we have an ongoing commitment to designing sustainable programs aimed at bringing about massive changes, ones that will impact generations to come.

**As chief executive officer of Dubai Cares, you are responsible for strategically defining and leading an organization that is dedicated to providing children in developing countries with access to quality education. The goals of Dubai Cares are closely aligned with those of the United Nations in terms of direction and strategy, and you work with many UN agencies dedicated to achieving these common goals. Recently, you joined hands with UNESCO to support the ambitious CapED program. This was followed by a signed partnership with the IBE to support their projects on early childhood care and education (ECCE). How do you envisage your partnership with UNESCO, and specifically the IBE, to contribute to every child being assured quality education and lifelong learning opportunities?**

UNESCO and Dubai Cares have signed a partnership agreement to support progress towards the Global Goal on education through a US\$3 million grant to the Capacity Development for Education (CapED) program. We agreed to work together to support countries to make progress towards the Sustainable Development Goal 4 (SDG4), which aims to ensure inclusive and equitable quality education and to promote lifelong learning opportunities for all, through the design and funding of integrated, impactful, sustainable, and scalable programs.

Our focus is on education because we strongly believe that it is one of the most effective tools to break the cycle of poverty worldwide. Therefore, we are trying to transform the education systems in developing countries to make education a tool for children in defining their future and breaking the cycle of poverty. Our ultimate goal is to shape the future of today's children by educating them, so they can positively influence and change the societies they live in.

Our partnership with UNESCO underlines our aim to effectively support developing countries in setting the appropriate mechanisms to deliver on the 2030 Agenda on Education. For a pilot group of 10 countries, CapED will build the capacity of ministry officials and ensure alignment between national education sector plans and the ambitions of the SDG4. It also aims to improve national data collection and analysis to better monitor progress towards the goal. This top-down approach will also complement Dubai Cares' downstream interventions at the community and school levels, helping us realize our vision of a holistic approach to development.

Similarly, our US\$1 million partnership with IBE focuses on strengthening the mechanisms necessary to ensure that ECCE is not only included in education sector plans, but also adopted across ministries. Resilient ECCE systems are fundamental and integral to fulfilling SDG4. Evidence shows that ECCE establishes an indispensable foundation for effective learning. Thus, the quality of education and learning, as manifest in learning outcomes, cannot be achieved without resilient and sustainable ECCE. Furthermore, by improving learning outcomes, ECCE contributes to the internal efficiency of education systems and also to more efficient use of associated resources. As such, the Dubai Cares partnership with the IBE is an essential part of our overall strategy to support the 2030 agenda.

**As a kid, you would regularly go to Switzerland to attend summer schools and visit France with your family, who insisted you take French lessons whenever you were abroad. How much of your "global citizen" profile stems from your upbringing? Do you have any special connection with Switzerland and with Geneva, in particular?**

France and Switzerland played a major role in making me a global citizen, and so did the United Kingdom as I spent a good amount of time in my teenage years in all three countries. Both France and Switzerland are special to me, as I still spend summer holidays in these two countries.

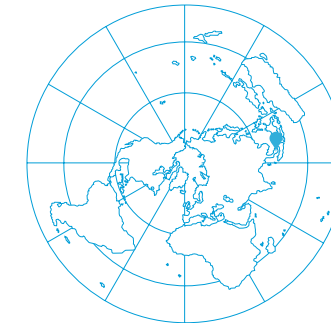
As for learning French, it was my mother who always encouraged me and my siblings to learn as many languages as possible which definitely adds to my 'global citizen' profile. Though I have to say that I need to polish my French.

Tariq Al Gurg, CEO, Dubai Cares, on a field trip to Senegal (2015).





BEST  
PRACTICE  
COUNTRIES



WOMEN *in* STEM

# Malaysia

How is Malaysia  
tilting the gender  
balance?

by  
Honourable  
Dato' Seri Mahdzir Khalid

Malaysia aims at closing the gender gap in STEM education and professions: a transformative process, with positive implications for the country's development.



No country—or humanity as a whole —can aspire to attain its full potential without ensuring that girls and women reach their full potential. Closing the gender gap in STEM fields is paramount to development. We hope that Malaysia's success story will inspire girls and women to advance within STEM professions across the globe.

Dato' Sri Haji Mohammad Najib bin Tun Haji Abdul Razak  
Prime Minister, Malaysia

# E

Enhancing human potential is crucial, and the key to improving the wellbeing of individuals and communities. Each citizen must be empowered if they are to have the skills to earn a living and collectively usher the country toward a higher living standard.

Enhancing human potential is crucial, and the key to improving the wellbeing of individuals and communities. Each citizen must be empowered if they are to have the skills to earn a living and collectively usher the country toward a higher living standard. But history shows that women have not always been provided equal opportunities to gain an education and to master higher-level skills. Traditionally perceived as family caregivers, women have long been sidelined in national and international development efforts. Realizing this, many countries have embarked on productive plans to gradually increase opportunities for women to access education and training in higher skills. The Education 2030 Agenda for Sustainable Development, spearheaded by UNESCO and supported by its Member States, has a clear vision for enhancing female participation in education. Likewise, the emphasis on science, technology, engineering, and mathematics (STEM) is considered a driving force for national and global economic development. These developments make it imperative that both women and men play important roles. And yet, women account for only 28% of researchers worldwide and the percentage drops at higher levels of decision-making (UNESCO, 2015a). Embracing for decades the need for both STEM and equal opportunities for women, Malaysia has achieved a great deal and intends to keep raising the proportions of women who participate in STEM and other arenas.

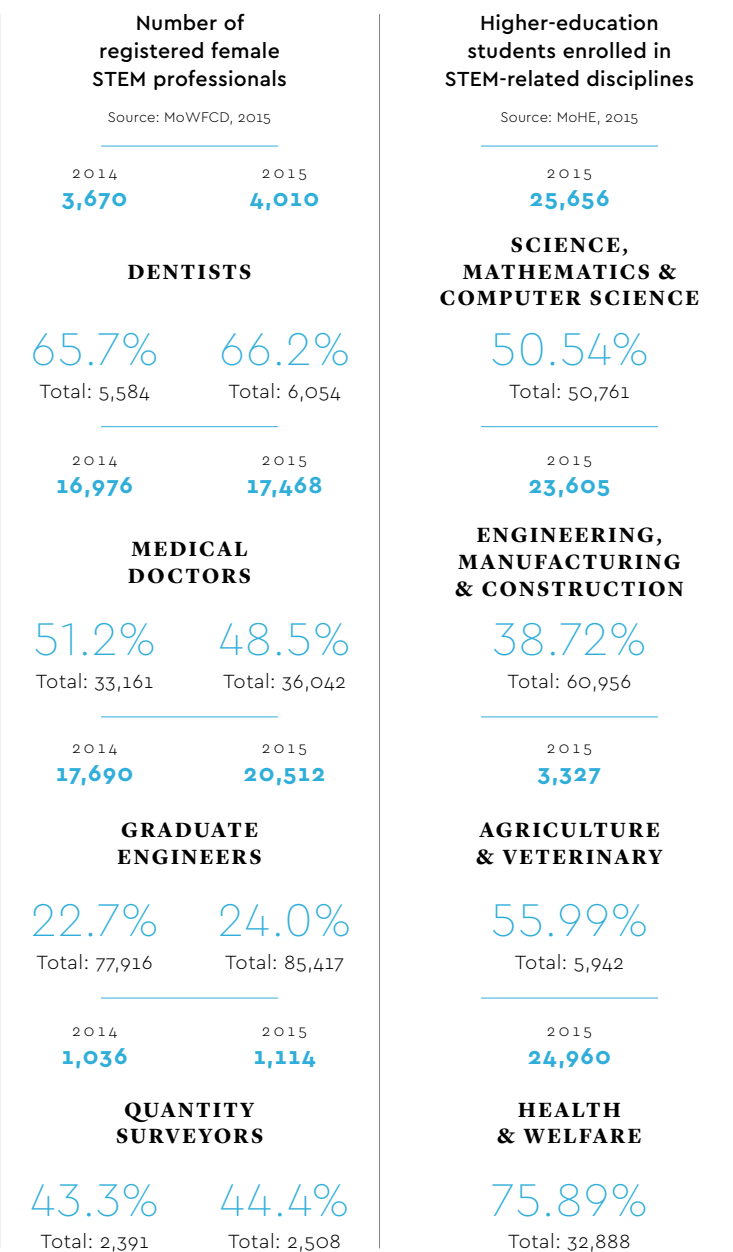


**Honourable Dato' Seri Mahdzir Khalid**  
Minister of Education, Malaysia

## Women's participation in STEM: The current situation in Malaysia

The Malaysian government identified STEM as one of the catalysts for transforming the country into a developed nation by 2020, ensuring sufficient STEM-related human capital, resources, and infrastructure. The government also recognizes the need to capitalize on female participation to promote its economic and national development (Mohamed, 2011). Since the early 1970s, the country has made great efforts to increase the percentage of women in the workforce; one result is an increase of 95%, across all fields, from 2,374,300 in 1990 to 4,689,700 in 2012 (MoHR, 2012).

On the education front, in 2015, women constituted more than 50% of students across all STEM-related courses, except engineering, in third-level education. Malaysian girls are performing well in STEM from primary schools up to university, in both academic and extracurricular areas. As of 2015, the enrolment rate was 84.6% for preschool children, 98% for primary school, 92.5% for lower secondary, and 85% for upper secondary. Half of these children are girls (MoE, 2016).



## The transformation process

In the 1960s, Malaysia faced the reality of gender disparity in education and in the workplace; girls' enrolment in schools, especially secondary schools, was low, and few women were in the professions, particularly in the fields of science and technology, which were largely male dominated. Gender stereotyping was common in the society: women were expected to marry young, bear children, and do housework. In the 1960s and early 1970s, the government spearheaded many education plans that aimed to provide education to all children regardless of gender. All children were required to attend and complete primary education as stipulated in the Education Act of 1996, which resulted in the establishment of more schools in urban, suburban, and rural areas. In 2003, compulsory education was extended to lower secondary school, assuring 9 years of education. Education has been provided free for all students since 2012. With this background, Malaysia has achieved nearly universal education at both primary and secondary levels (MoE, 2015).

In the 1970s, the government of Malaysia focused on the need for more STEM students, both girls and boys, in order to become a developed nation, and the 60:40

Policy was formulated. This policy encourages students with good scores on science and mathematics tests at the lower secondary school level to enter the science stream at the upper secondary level, and take more STEM subjects. At present, 46.72% of students in upper secondary 5, the last year of upper secondary school, choose the STEM stream; 48.85% of the girls are in the STEM stream (MoE, 2014). This policy has led to a significant number of Malaysians becoming qualified in STEM fields.

Alongside this effort to provide education for all and to emphasize STEM education for all, the Malaysian government expanded girls' schools, providing the impetus girls needed to participate more fully in education. First established in 1947, girls' schools have created a safe, equal learning environment where female students are encouraged to express themselves actively and take on leadership roles as they participate in learning such as STEM activities and experiments (CDD, 2015). Currently there are 84 girls' schools and 6 girls' residential science schools.

In addition to the girls' schools, the government established residential science schools to provide

quality STEM education. The first residential school, Malay College Kuala Kangsar (MCKK), was established in 1905. Currently, we have 69 fully residential science schools across the country; 6 for boys, 6 for girls, and 57 co-ed. Apart from this, the first residential MARA Junior Science College (MJSC) was built in 1972 by the People's Trust Council; now there are 51 MJSCs across the country. Over the years, other residential science schools and MJSCs have succeeded in producing many outstanding STEM professionals.

**Two key factors encourage Malaysian girls to participate in STEM: the policies themselves, and the attention the government places on implementing them. Ultimately aiming to benefit both girls and boys, the policies set STEM up as the basis for nation building, mainstreaming STEM in education.**

## Key factors promoting women's participation in STEM

Two key factors encourage Malaysian girls to participate in STEM: the policies themselves, and the attention the government places on implementing them. Ultimately aiming to benefit both girls and boys, the policies set STEM up as the basis for nation building, mainstreaming STEM in education. What emphasizes the centrality of women's participation is the implementation of gender-specific policies and development plans that particularly target women and girls.

Several policies are crucial in this effort. The New Economic Model (NEM), launched in 2010, aims to transform Malaysia into an inclusive and sustainable developed nation by 2020. NEM focuses on stimulating economic growth by improving worker productivity across all sectors of society. Meanwhile, the National Policy on Science, Technology & Innovation (NPSTI) 2013-2020 focuses on strategies to make Malaysia a sustainable and inclusive knowledge-oriented economy. Both NEM and NPSTI highlight the pivotal role of STEM education in empowering both women and men to achieve its vision of a scientifically advanced nation experiencing socio-economic transformation and in-

clusive growth. In addition, strengthening STEM is a key element in the Malaysia Education Blueprint (MEB) 2013-2025, a comprehensive plan produced after a comprehensive review of the education system. Likewise, the Malaysia Education Blueprint - Higher Education (MEBHE) 2015-2025 identifies technical and vocational education and training (TVET) as a STEM initiative to be focused on over the next decade.

In addition, Malaysia has a national women's policy, the Malaysia Woman Policy (MWP), established nearly 30 years ago and revised in 2009. It aims to develop women's human capital and to empower women to be competent, resilient, knowledgeable, visionary, creative, and innovative while demonstrating moral values. In fact, the MWP resulted from Malaysia's strong support for the universal principles of gender equality and non-discrimination in the regional and international cooperative Action Plan for the Development of Women. As the policy was developed further, it outlined actions to be taken by government agencies, NGOs, the private sector, and civil society. The policy seeks to empower women in areas such



Female role models are a clear motivator, as they encourage more girls to enter STEM. Many women are involved in STEM fields in Malaysia, specifically in the health sciences and medicine.

as e-commerce, so they can gain the knowledge and skills they need to function as entrepreneurs. This endeavor will eventually eliminate the discrimination and marginalization that affect women in the nation's development efforts.

## Key lessons

Malaysia has succeeded in engaging more girls in STEM mostly by formulating appropriate and comprehensive policies and ensuring they are implemented efficiently through thorough action plans and regular monitoring, along with quality education and sound professional development among teachers.

### **Establishing girls' schools to capitalize on their potential through education**

Given the influences of Malaysian society and culture, Malaysian women have traditionally been raised to be less assertive in a male-dominated community. The gender stereotyping of boys as better in 'smarter' subjects such as science and mathematics has kept girls from progressing in STEM fields. Thus, girls needed a less inhibiting environment, one where they could express themselves freely and where they would have to play an active role in STEM learning. Hence the policy of girls' schools was formulated to capitalize on girls' potential through such a secure, inclusive, and equal learning environment. In such schools, girls are encouraged to express themselves freely and to be more independent and assertive (CDD, 2015a). That these schools are succeeding is clear, as their students have re-

ceived many innovation awards and participated in many STEM projects (CDD, 2015a).

### **Empowering female role models to inspire girls as students**

Female role models are a clear motivator, as they encourage more girls to enter STEM. Many women are involved in STEM fields in Malaysia, specifically in the health sciences and medicine; in a growing trend, more are venturing into the physical sciences and engineering. These women professionals can be a powerful instrument in encouraging girls to participate in STEM. A study conducted by the Ministry of Education (CDD 2015b) looked at the reasons girls chose a STEM course or career, and found five key factors: their interest in exploring and doing experiments, career guidance, inspiring teachers, role models, and peer influence. Clearly, relationships play a key role in their choice; this finding highlights the need to adequately train teachers and school counselors to engage more girls in STEM fields—and to continue connecting them to role models.

### **Using gender-inclusive pedagogy**

Teachers are key players in including girls in inquiry-based ac-

tivities and collaborative innovative STEM projects. Female role models who participated in the CDD (2015b) study mentioned above cited the experiments they conducted in school as a factor that motivated them to pursue STEM. Pedagogies that promote exploration and inquiry-based learning are core to the Malaysian STEM curriculum. Teacher training in Malaysia focuses on this acquisition of STEM practices where students explore and investigate real-life issues. Gender equality is accomplished as female and male students have greater and equal access and opportunities to explore and be involved in STEM projects.

### **Involving the community**

Getting more girls involved is not the sole responsibility of schools; it also relies on the whole community. Government sectors need to work together with NGOs, professional bodies, and other civil organizations to get rid of gender stereotyping. Malaysia has enacted many STEM-related laws. The most prominent are the Academy of Sciences Malaysia Act of 1994, the Chemists Act of 1975, and the Engineers Act of 1967, revised in 2007. Each act is implemented through an institution or professional body, such as the Academy of Sciences or Institute of

## The IBE-UNESCO Girls in STEM initiative

Chemistry Malaysia, or the relevant ministry. These professional bodies bring together specialized STEM experts to provide advice to the government and the practicing scientists. Their activities focus on motivating students to pursue STEM-related courses and become STEM professionals regardless of gender, at the school and university level.

Malaysia has always been committed to working together with UNESCO in its programs and activities to promote and enhance the quality of education among its Member States. Malaysia's longstanding commitment began in 1958 when it first joined UNESCO. It has been a member of the executive board for several terms, including the current 2015–2019 term. In April 2015, the Malaysian government approved a proposal by IBE-UNESCO to work collaboratively on an initiative to strengthen STEM curricula for girls. The initiative aims to increase female knowledge and engagement in STEM through the creation of gender-responsive STEM education for Member States in Asia and the Pacific (Cambodia and Vietnam) and Africa (Kenya and Nigeria).

Experts from Malaysia's Ministry of Education worked together with those in SEAMEO RECSAM, IBE-UNESCO, and the beneficiary countries at a series of workshops and dialogues to create a roadmap to bring more girls into STEM. The roadmap contains plans to formulate STEM education policies, and to develop gender-responsive STEM curricula, teacher education programs, and resources.

This effort has already borne several fruits: the inaugural Cambodian STEM education policy, the on-going development of the STEM curriculum framework, and for Kenya, a plan for education reform and a STEM curriculum. The Malaysian experts, working with IBE-UNESCO staff, have also prepared a training tool: a resource pack for gender-responsive STEM education. The resource pack was developed to enhance the skills and readiness of participants in each country, giving them the confidence to share with colleagues at home their knowledge and experiences about strengthening STEM education. This resource pack will be used as technical guidance for the beneficiary countries and the Member States.

### Challenges and future frontiers

One interesting challenge has been identified: boys are in danger of being sidelined, as the emphasis is placed on engaging girls in STEM. Thus, we must aim to maintain the balance, encouraging both boys and girls in all programs and activities, to avoid the 'lost boys' syndrome. Effective strategies need to be developed to foster and maintain gender equality. It would be ideal to examine the current



*Above:*  
Inside a classroom in a local Malay primary school.

policies, curricula, and practices to ensure that they are designed in gender-responsive ways, and also to encourage both girls and boys to work together on school projects, and to consider each other as equal partners.

Cultivating a culture that values STEM at an early age is also a challenge to be reckoned with. Children should be encouraged to engage in hands-on activities, and should be provided with opportunities to fulfill their natural curiosity, practice basic science skills, and investigate their environment instead of being forced to regurgitate science facts. It is also worthwhile to identify and prevent possible hidden gender biases within the society that can hinder both girls and boys from participating, and progressing, in STEM.

Envisioning a bright future where gender equality is guaranteed across all strata of society, Malaysia continues to strive to create an inclusive, respectful, and supportive culture: a culture where both women and men work together as pillars of support for each other. Malaysia has achieved considerable gender equality and inclusiveness in STEM fields so far. Yet, it will make even more effort

to improve the quality of STEM education and guarantee a sufficient supply of STEM resources and human resources to lead the country to an advanced level, to benefit both Malaysia and the world at large. Meanwhile, Malaysia will continue to play its role as an advocate through sharing its know-how and experiences to help realize gender-responsive STEM education worldwide.



# MARIA TERESA

Grand Duchess of Luxembourg

On the rights and dignity of girls and more

Her Royal Highness the Grand Duchess of Luxembourg has been a UNESCO Goodwill Ambassador since 1997. She has relentlessly promoted micro-credits and the education of women and girls throughout the world.

**As another year draws to a close, you are no doubt looking back proudly on your accomplishments, but also looking forward to another year of making a difference. What do you see as your most significant future focus in the coming years?**

I intend to continue pursuing very actively, alongside my duties and responsibilities as the wife of a Head of State, the series of engagements that have been mine for over 20 years in three principal areas: learning difficulties; micro-credit and social entrepreneurship; and respect for the rights and dignity of girls and young women, and particularly their right to quality education. These are convergent fields because what is important, within each of these priorities, is to protect the vulnerable.

The year 2016 saw the consecration of a commitment that is particularly dear to me, because it also affects me personally, as one of my children is a sufferer: namely learning difficulties. In January 2016, I organized the first international forum on this theme, and it was a striking success. Afterwards I decided to pursue the dynamic that the forum initiated, through the Grand Duke and Grand Duchess Foundation, over which I preside. The Foundation is in the process of establishing an exchange and information platform on the Internet to enable parents, teachers, and professionals to share their experiences, and thus improve the effectiveness of the assistance provided to children with learning difficulties.

Micro-finance always has been and will remain central to my priorities. It offers a way out of the vicious circle of poverty and helps to give people back their dignity, as they obtain not only credit, but particularly confidence and support from the lending institution.

In most cases, this type of support gives rise to a desire for education which, in turn, creates a virtuous



circle. The beneficiaries of micro-credit are the first to be convinced of the importance of sending their children to school and university and of their own need for training, for example, to learn to write and count, whatever their age. Micro-finance helps people to stand on their own two feet. In so doing, it is a formidable instrument for peace. It is also a very effective means of integration, including in Luxembourg, my own country, where social cohesion is undoubtedly more important than elsewhere due to the high proportion of foreign nationals!

The Grand Duke and Grand Duchess Foundation plays an active role in the development of social entrepreneurship and in offering vulnerable, and sometimes marginalized, people the possibility of creating a business. The Foundation is one of the founder members, alongside the Government of Luxembourg, of the first incubator for social entrepreneurs, 6zero1. Through the training provided, along with individualized support, this initiative will serve as a trampoline for social enterprises. By means of this initiative, the Grand Duke and I hope to encourage social entrepreneurship in Luxembourg so as to leave no one on the wayside.

Respect for the dignity of girls and women, and their right to education, will also be one of the guiding lights of my future action. For many years, as a UNESCO Goodwill Ambassador and a UNICEF Eminent Advocate for Children, I have devoted myself to the education of girls and young women.

**Your passion for education as an empowering tool, especially for girls or future women, and your strong advocacy for a culture of peace, remain as strong as ever. What drives your incessant work on these crucial issues?**

I have re-joined the board of the Asian University for Women (AUW), a young university located in Chittagong in Bangladesh, which provides high-level education for young girls from all social backgrounds, irrespective of the financial capacity of their families.

Since its creation, the AUW has educated around 600 young women from 15 different countries, who are destined to become women leaders in Asia. Some 150 young women registered in August 2016 at the beginning of the academic year, including 25 women from Afghanistan.

In 2015, the AUW launched a special program for women employees in textile factories in Bangladesh to enable them to study at universities. Study grants facilitated the admission of 22 women employees from garment factories.

Educated young women offer an opportunity in regions where, sadly, most women are affected by illiteracy. These young women serve as models and encourage future generations to follow in their footsteps by convincing them that they too can become lawyers, politicians, or engineers.

And yet there are still too many children, particularly girls, who drop out of school too early because their parents do not have the money to send them to

school, or because the infrastructure is not adapted to the presence of girls. It can never be over-emphasized that the absence of education offers fertile ground for unemployment, social exclusion, and even extremism.

It is still a little too early to speak about my other projects, but I am thinking of organizing a major symposium devoted to the central role women play in building a more just world.

I am convinced that we women can become even more committed advocates of peace and respect for human dignity. We represent an extraordinary strength for the advancement of just causes. I am determined to work in this field.

**Tolerance and compassion are qualities of fearless people, Paulo Coelho once said. You are one of those people: tirelessly promoting dialogue, understanding, tolerance, solidarity, and a sense of common destiny of all humanity. But encouraging cultural tolerance can do only so much to counter discrimination and prejudice, and the related violence and extremism. How do your initiatives contribute to addressing violent extremism, and what has been the concrete impact on the ground?**

I like to speak frequently of Professor Yunus, who asks the right questions about our societies, which are engaged in the mad race for “always more”, without seeing that the real issue is our survival on the planet. Which leads us inevitably to the values of tolerance and diversity, and the resulting duty of sharing.

The duty of sharing is more important among those who, like myself, have been privileged in life. And this helps me not to be ashamed or to show embarrassment at this gift that life has offered me. I am also extremely grateful to my parents, who passed on to me the importance of the values of sharing and the happiness of giving when nothing can be expected in return, other than the smile of a young girl saying thank you for helping her to study or learn a trade and, why not, to become tomorrow one of the women who will in turn devote their lives to the eradication of extreme poverty and the promotion of equality of opportunity in access to education and training.

The fact that I have been a UNESCO Goodwill Ambassador since 1997 has reinforced my commitment to the rights of women and girls, particularly in developing countries, where women face the greatest difficulties.

Through meeting Professor Yunus, I have found in micro-finance a powerful and effective tool to support women so that they can look to their own survival, find a way out of their precarious existence, and become independent in societies where, too frequently, their rights are fragile.

When you give a woman the wherewithal to buy a few chickens, you will be astonished at the result. By selling eggs on the market, she will generate income, which will then enable her to build a small house and tend a vegetable garden. Later, she will send her children to school, and perhaps even to university. If she is

illiterate, she will experience the overwhelming need to read and count to develop her small business.

**What advice would you give to education systems (both formal and informal education) to imbue future generations with the love and respect for diversity, and the sense of service that you so strongly embody?**

To be effective, learning must be based on a holistic approach to education aimed at developing both the individual and the society. I believe in a global and humanistic approach to education and training, which must be understood as “public goods”, and not only seen as utilitarian objectives by decision-makers seeking to create “human capital”, who manage to forget that human beings are central to everything.

I am also convinced that lifelong learning must prevail over a purely economic approach and that employability and labor market integration cannot be the only objectives. Lifelong learning starts with the development of the individual and their environment. The development of the human being, their long-term well-being, their improved health, and the values of



**To be effective, learning must be based on a holistic approach to education aimed at developing both the individual and the society. I believe in a global and humanistic approach to education and training, which must be understood as “public goods”, and not only seen as utilitarian objectives by decision-makers seeking to create “human capital”, who manage to forget that human beings are central to everything.**

tolerance and social cohesion have to be central to this process, although sadly this is ignored in many education systems.

**You have a palpable star power, as you have won the hearts of people all over the world through your humanitarian work, but also through your warmth, down-to-earth disposition, and openness to other cultures (which includes your admirable multilingualism). How did your upbringing and personal history contribute to the making of the inspirational Grand Duchess of Luxembourg?**

I have great faith in the value of examples and the power of dreams. I regret that some education systems are enclosed in programs and that they sometimes forget the need to inspire students.

And also what a pity it is that we no longer find the time to tell stories and to read books which bring stars to our eyes.

As a young girl, I grew up in admiration of Sister Emmanuelle, who gave back the dignity to the poorest of the poor in the slums of Cairo. The example of this extraordinary woman helped bring me closer to Professor Yunus, whose name is associated with the development of micro-credit schemes, which won him the 2006 Nobel Peace Prize. He has been one of the most influential people in my life together, clearly, with Federico Mayor, the former Director-General of UNESCO, who has been one of my mentors in my work to promote the culture of peace.

**You lived and studied in Geneva, one of the most internationally-minded cities in the world and a major hub for world governance and cooperation. How did your time there influence your own views and subsequent global humanitarian work?**

I owe certain of my character traits to the fact that, at a very young age, I was exposed to exile and I had to integrate into the country which offered shelter to my family. This is what I call the “exile factor”. I had a duty to integrate. I now consider it a strength that I was educated in several countries, learned many languages, and grew up in several cultures. That is one of the greatest riches of my life. I can say that I understand Americans better than Europeans since, just before leaving Cuba, the country where I was born, my parents were exiled in New York, where I grew up before we moved to Geneva.

Geneva was a decisive city for me and for my husband, whom I met when we were both studying politics.

The fact of studying politics in Geneva was something exceptional, first because of the quality of the education, and also due to the democratic tradition and respect for institutions that are deeply rooted in the DNA of Switzerland. It was undoubtedly the best education that we could have had. I studied politics with a view to working in the humanitarian field. I knew that would be my vocation, alongside my role as mother and the wife of a Head of State. It is an immense challenge to successfully lead a public life and care for a large family.



BEST  
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COUNTRIES



UNRAVELLING SUCCESS  
*factors*

# Singapore

Singapore's  
Education Quality  
and Learning  
Outcomes

by  
Saravanan Gopinathan

PISA's performance, coupled with Singapore's transformative economic growth over the last half century, provides credence to the OECD's claim that the quality of human capital, achieved through education, is related to a country's potential for economic growth. This article examines the achievements of Singapore's education system, the principles underpinning policy, the challenges that were met and have to be met in the new century, and prospects for successfully meeting those challenges.

In a world where providing quality and relevant education and learning seems out of reach for many countries, Singapore's education system is definitely an outlier. To judge by the 2015 PISA Assessment, it is perhaps the best in the world in the subjects examined by PISA. Its performance has been consistent, improving over time, and its students also do well on assessments beyond PISA, like TIMSS and PIRLS.



**Saravanan Gopinathan**

Adjunct Professor,  
Lee Kuan Yew  
School of Public  
Policy, National  
University  
of Singapore

## The early years, 1965–1997

Why did education and skills development merit such significant attention in Singapore? The answer to this question lies in its social demographics and limitations. Singapore is a multi-ethnic society, with a Chinese majority. There are cultural, linguistic, and religious differences. In 1965, an independent Singapore inherited a school system with four segregated mediums of instruction. Further, Singapore is a small tropical island with no national resources, surrounded by large resource-rich neighbors. An entrepôt economy could not provide the jobs and wealth required to build a modern society.

Thus, education policy in the early years, termed the era of 'survival', had to, and did, respond to these challenges. Issues related to the medium of instruction were resolved through a formula of societal multilingualism and educational bilingualism. English is the medium of instruction. In addition, all children learn a second language, and a heritage language, which could be Mandarin, Malay, or Tamil. The choice of English has provided advantages: it enabled the country to industrialize successfully in the 1970s and 1980s, and to become well integrated into the global economy. Given the country's ethnic plurality, and its newly indepen-

dent status, social cohesion and loyalty to nation were important educational goals. So, civics and citizenship education were always an important part of the curriculum. Another important feature of the curriculum was the emphasis on mathematics, science, and technology, understandable when the priority was rapid industrialization.

Given the poor state of the education system in the middle 1960s, it is remarkable how much progress was made in two decades. A segregated system was unified. A common curriculum and a rigorous assessment framework were established. Given that English proficiency was crucial to industrialization, the use of English as a medium of instruction was removed from political contestation, and attention was focused on developing curricula and textbooks and preparing teachers. One key element responsible for the transformation was the attention paid to teacher preparation. Steps were taken to ensure that enough well-qualified and motivated teachers were in place to implement a rigorous English and TVET curriculum. A curriculum development center was established to spearhead curriculum change and steps were taken to upgrade teacher preparation when the Institute of

Education was established in 1991. Beyond K-12, the government expanded both vocational training via polytechnics and the Vocational and Industrial Training Board. The expansion of university places proceeded more slowly.

Another key feature of Singapore's education system merits attention: while many education systems have moved toward keeping students together, Singapore has a multi-tracked system. This is a response to a problem that all systems face: the range of abilities pupils bring to school. In Singapore, the problem was complicated by the requirement that all pupils attain bilingual proficiency. It can be argued that in Singapore, some of the effects of tracking were mitigated by its strong public system of schooling, and its common curriculum and assessment system. But a stronger justification for tracking is the improvement shown in educational quality terms. Data show that student attention improved consistently and more students stayed in school longer. Over time, their test scores rose. For example, in the 1995 TIMSS assessment, Singapore's 13 year olds had the highest scores in mathematics and science; while the international average was a score of 500, Singapore students achieved 643.



Schools must be centers for questioning and searching within and outside the classroom..., children must be continually pressed to raise questions and accept challenges, to find solutions that are not immediately apparent, to explain concepts, and justify their reasoning...

## The post-industrial innovative economy, since 1997

The government, as the state's economic guardian, was alert to the changes in the global economy that began in the 1980s. It recognized the growing tide of globalization, and the potential consequences for Singapore's high-wage model if populous ASEAN countries like Indonesia and mainland giants like China opted for an export-led economy. Singapore had to move up the value chain into higher value-added production, expand its services sector, and begin to systematically be more productive, innovative, and entrepreneurial.

This clearly posed a challenge to a successful education system built upon standardization. While its students did clearly master academic content, it was becoming too assessment-driven and could not contribute to the new economy. The system needed a new conception of education quality. Students now needed to know both content and how to apply their knowledge. They needed not just to find solutions but also to find problems!

A small start had been made in 1987, when the government encouraged a few high-performing schools to go independent; with greater autonomy, they

could modify and enrich their curricula to stretch their bright students. But the more significant system-wide initiatives were to be found in the *Thinking Schools, Learning Nation (TSLN)*, *Teach Less, Learn More*, and ICT Master Plans policies. Their principal aim was to move Singapore's schooling into a more open, questioning pedagogy with a classroom focus primarily on student learning, not teaching. In 1997, former Prime Minister Goh Chok Tong took this view:

*Schools must be centers for questioning and searching within and outside the classroom; children must be continually pressed to raise questions and accept challenges, to find solutions that are not immediately apparent, to explain concepts, and justify their reasoning...*

In making this shift, the Singapore education system faced several challenging questions. Why did a system that did well in TIMSS (and later PISA) need to change? Could a system that defined education quality as good student performance on high-stakes examinations now shift to one that valued both academic and non-academic talents? Could curriculum as-

essment, and most importantly, teachers, move from being content experts to facilitators of student learning? Could a national school system have greater variety, and a wider range of knowledge-generating pedagogies? Could learning be fun, student-owned, and purposeful beyond performance on examinations?

This year, 2017, marks the twentieth anniversary of Mr. Goh's TSLN speech. It is as good a time as any to assess the success of policy initiatives. Overall, it is clear that while high-stakes examinations remain important and the system is still competitive, learning environments in Singapore's classrooms have changed considerably. This is principally because the ministry implemented a cluster of policies, incrementally changing the key variables. The policy message has remained consistent: parents, employers, and students should embrace the need for 21st-century competencies. Additionally, the school system was further diversified with the creation of specialized schools like the School of the Arts, the Sports School, and the School for Science and Mathematics. Curricula and textbooks were progressively changed to reflect

## Singapore's journey in building a world-class education system can be explained in a 3Cs framework: Culture, Context, and Capacity.



Above:  
The Buddha Tooth Relic Temple and Museum, Singapore.

not just established content but ways for students to critique the content, to apply the knowledge to real life problems. For example, the lower secondary social studies textbooks used an explicitly source-based learning approach. Assessment structures have also changed to test students' deep understanding of content, and their ability to apply their knowledge.

But the key in making the shift to a more knowledge-building pedagogy lay in teachers' capacity to change their instructional practices. The NIE has played a major role in preparing teachers for their new roles by revamping the teacher education curriculum and offering professional development courses that emphasize the newly required teaching skills. These efforts have borne fruit. An analysis of the 2016 TIMSS results for Singapore showed that Singapore students had done better when "tackling non-routine questions and those requiring them to apply knowledge" (A. Teng, Straits Times, 30 November 2016). Specialists point to teachers encouraging students to use more reasoning strategies in mathematics and science, to think like scientists, develop hypotheses, use data and evidence, and pro-

vide explanations for the phenomena they study.

That said, it should be noted that current pedagogical practices can best be described as a 'hybrid pedagogy', a balanced emphasis on conceptual mastery of content and on encouragement to move beyond memorizing, to generating and applying knowledge. There is still some way to go, but the country has made a good start on the journey.

## Building the future on the present

Singapore's journey in building a world-class education system can be explained in a 3Cs framework. The first C is Culture. Singapore is a nation of immigrants, people who came to Singapore to escape poverty and build better lives. The majority Chinese population has, as an ethnic group, high respect for education as a means of achieving social mobility. When Singapore made rapid economic progress in the first three decades after independence, education qualifications were important in the labor market. Thus, Singapore residents highly value educational performance and achievement, and Singapore's students are prepared to work hard in school.

The second C is Context. Singapore is a small multi-ethnic country, with few resources of its own and neighbors that have large populations and many resources. At independence, some questioned its legitimacy as a sovereign state. Clearly, it had to demonstrate that it could thrive despite its limitations. The key was developing human resources through high-quality, relevant education and training. As noted earlier, the emphases on English, science, mathematics, and technology were responses to economic imperatives. The

need to survive also meant that the government was very focused on achieving its aims and, therefore, planned education policy for the long term. Certain conditions continue, but policies have changed when needed; reform initiatives have been incremental in nature, not 'big bang' politically-driven initiatives.

The final C is Capacity. Singapore could not have achieved its success without its ability to both make good policy and implement it effectively. Singapore's administrative services are probably the best in the world. They were able to recognize the complex, interrelated nature of education and curriculum change. For instance, in attempting to raise standards in math and science, they paid careful attention to teacher quality, ensuring that high school teachers had domain expertise and were well prepared. Curricula, textbooks, and instruction materials were carefully planned and teacher capacity was built up via relevant curriculum development.

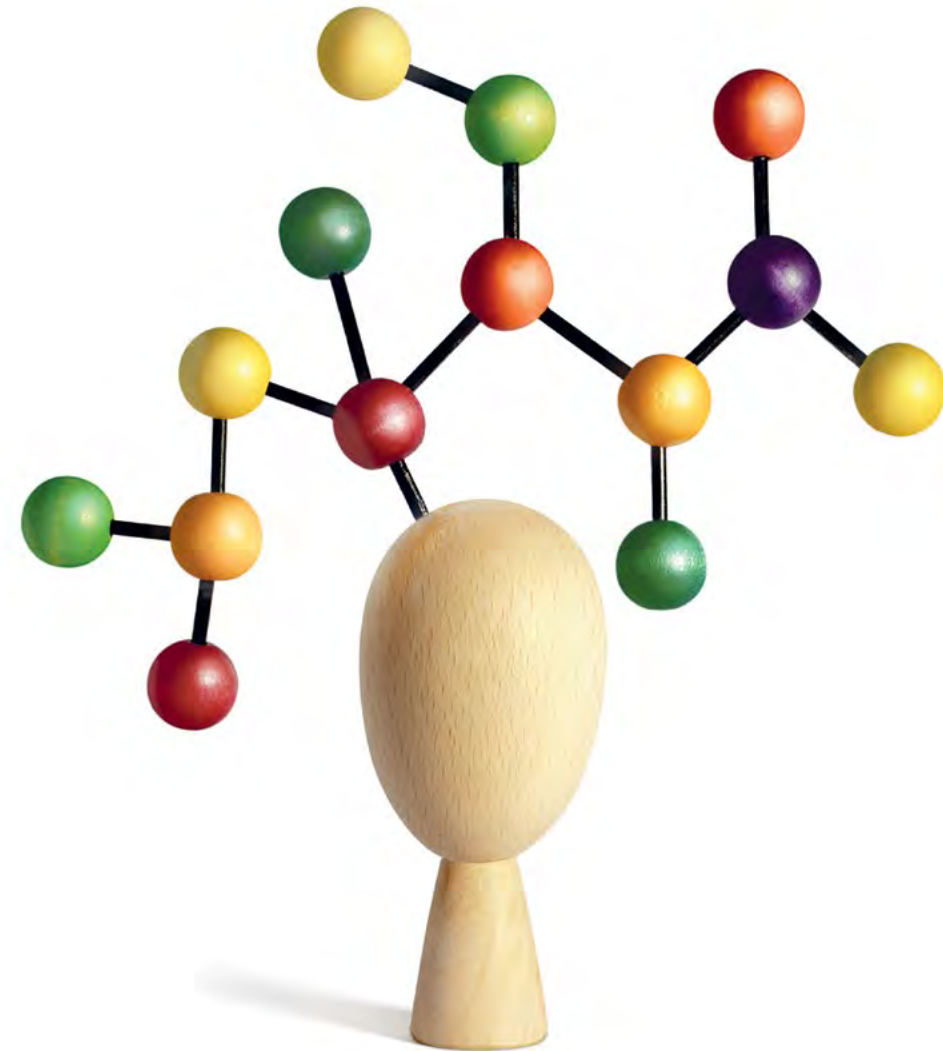
In conclusion, education quality in Singapore is best understood as multi-layered. The evidence for student ability and performance is found in the scores that Singapore students

earn on international assessments. But underpinning that is a whole ecology of institutions and processes, starting from a whole-of-government vision of high quality education and training, and including the ability to see education as a complex, interrelated process that involves a whole-of-government approach. Thus, many institutions, beyond the MOE, are involved in policy making and implementation. Finally, the wider society holds education in high regard and both families and students have high aspirations. Singapore is thus placed to weather the new challenges that will inevitably confront education in the future.



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*of*  
EDUCATION

Many young learners are being educated for the past, instead of the future. We cannot take the risk that they will be failed by obsolete education systems, and left dependent and poor. Facilitating future competencies and preparing for the unknown are critical challenges for education today.



# THE NEUROSCIENCE *of* LEARNING

&  
THE GLOBAL  
LEARNING CRISIS

*by*

Paul Howard-Jones, Ross Cunnington, Amedeo D'Angiulli,  
Jérôme Prado, and Vivian Reigosa-Crespo

*Across the world, governments are increasingly interested in developing a 21<sup>st</sup>-century education system that is supported by concrete evidence about how we learn. This is prompting a new and exciting dialogue between those in the fields of neuroscience and education. For a long time, research on understanding and developing new methods of learning has not moved as quickly as in many other areas. While transport engineering has moved from the horse to the spaceship, and medicine has moved from superstition to stem cells, changes in our approach to learning have been relatively modest. Scientific technologies and concepts, particularly from neuroscience, are aiming to change that. Over the coming years, neuroscientists will be working collaboratively with staff at IBE-UNESCO to explore how current problems and needs in education can drive new directions for neuroscience research, and how neuroscience can feed into educational thinking, policy, and practice.*

## Joint Statement

**Mmantsetsa Marope**  
Director, IBE-UNESCO

**Larry Swanson**  
Secretary General, IBRO

### IBE-UNESCO/IBRO SENIOR FELLOWSHIP

As a leading neuroscientist of learning, do you want your research findings to have an impact on the world's most daunting challenge: to equitably and resource efficiently and equitably improve development-relevant learning outcomes? Apply to the IBE-UNESCO/IBRO Senior Fellowship and spend three intellectually vibrant months in iconic Geneva, Switzerland, at the IBE headquarters.

Year after year, the UNESCO-led Global Education Monitoring Report reminds us how the world's average education system fails on its mandate to facilitate learning. The latest OECD report tells us that student performance on PISA remains constant. Several regional and county assessment are frustrated with the stagnation, or even worse, the decline of their students' learning outcomes. For some unknown reason, equitable facilitation of learning, and the resultant equity of higher learning outcomes are elusive to many of the world's education systems. Yet, the future prosperity of humanity relies on effective education for lifelong learning! Indeed, lifelong learning is the be-all-and-end-all of human resilience in the 21st century where the only constant is change. IBE-UNESCO and the International Brain Research Organization (IBRO) teamed together to unravel the mystery behind the failure of the

education systems to effectively facilitate learning. Guided by a dictum that 'the only way to solve a problem is to understand it', the IBE-UNESCO and IBRO launched an initiative to better apply research findings from cutting-edge neuroscience to understand the education processes that determine learning outcomes: curriculum, teaching, learning, its assessment, and the degree to which the broader education system can enable effective curriculum implementation. Each year, IBE-UNESCO and IBRO launch a competitive senior fellowship that invites neuroscientists of learning to spend three months at the IBE-UNESCO and focus on the translation of neuroscience research on learning to education policy and practice. In 2016, the first cohort of world-leading neuroscientists spent three months at the IBE and produced impressive work. The second cohort will join the IBE in October 2017. The cycle continues!







★  
**SENIOR FELLOWS**  
 ★  
 Science of Learning Fellowship  
 IBE-UNESCO  
 IBRO



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If ever there was a panacea for a nation, it must surely be education. Researchers have shown that educational achievement provides each of us with many benefits that also contribute to a nation's economic growth, holistic development, and stability. Economic models show that the longer-term benefits of investing in education far outweigh the costs, through boosting productivity and innovation, as well as reducing crime (Doyle et al., 2009) and improving health (Cutler and Lleras-Muney, 2012). However, it is becoming clearer that the benefits do not arise from merely attending school but from learning (Benos and Zotou, 2014). On a global level, while many countries have increased the number of children attending school, the goal of ensuring educational quality has been more elusive (UNESCO, 2015). For example, around half or more of children completing primary schooling in many countries, including India, Bangladesh, Pakistan, Kenya, and Tanzania, are unable to read even the simplest texts or perform simple arithmetic. One economist has estimated that, at the current rate of progress, it will be well over 100 years before students in developing countries can produce results on science exams similar to those of today's students in developed countries (Pritchett, 2013). If so much depends on the quality of learning, a new sense of urgency—combined with rigor—is needed in our approach to education and learning.

A scientific understanding of learning can aid education in several ways. First, authentic messages about how the brain learns can help dissipate the growing

number of “neuromyths” that some educators hold. For example, some types of behavior do activate the left or right side of the brain more than the other, but it is simply a myth that we use the left side of our brain in one activity and the right side in another. The two hemispheres communicate with each other when we undertake even the simplest everyday task. Therefore, categorizing people as ‘left-brained’ or ‘right-brained’ takes the misunderstanding one stage further. It is also a myth that it is helpful to categorize students as visual, auditory, or kinesthetic, and then teach to their preferred learning style. There is no convincing evidence from neuroscience, psychology, or education that doing so is effective (Coffield et al., 2004; Kratzig and Arbutnott, 2006). The brain is so highly interconnected and multisensory that even seeing the word ‘bell’ can activate the auditory cortex. Misunderstandings about the learning brain are commonly associated with poor classroom practice but they are popular with teachers across the world, even without any credible basis in science (Howard-Jones, 2014).

Second, and most important, brain science is now authentically informing new approaches to learning. This is a two-way venture: scientists can benefit from exploring their concepts in ‘real world’ environments, and educators can benefit by gaining insight into learning processes and practices. Techniques such as neuroimaging are allowing us to study brain function while learners acquire skills. By coming to understand the underlying processes involved in learning, educators

Brain science is now authentically informing new approaches to learning. This is a two-way venture: scientists can benefit from exploring their concepts in ‘real world’ environments, and educators can benefit by gaining insight into learning processes and practices.

and scientists are collaboratively developing neurocognitive interventions for both typical and atypical learners that should help them improve skills in literacy, numeracy, reasoning, and many other areas (Butterworth, Varma, and Laurillard, 2011). For example, researchers have found that we inherit ancient capacities that function as part of our “starter kit” for understanding particular areas of learning (Butterworth and Reigosa-Crespo, 2007; Dehaene et al., 2010).

This finding constitutes a real example of usable knowledge derived from neuroscience research with important implications for education. This knowledge can sensitize teachers to the ways their students develop these capacities, helping them to identify and accommodate the individual differences in their classroom. In addition, the knowledge helps teachers capitalize on these capacities whenever possible during instruction.

For example, neuroscience research provides insights into how these intuitions contribute to children's learning of arithmetic—and this has very practical implications for the classroom (Dehaene and Cohen, 2007; Prado et al., 2011; Prado, Mutreja, and Booth, 2014). This research has stimulated intervention studies which that when students practice comparing quantities, their arithmetic skills improve (Hyde, Khanum, and Spelke, 2014; Park and Brannon, 2013).

Neuroscience research is also relevant to education in the reading domain. For instance, as children learn to read, a region of the brain becomes specialized to help them visually process letters. As they continue



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this learning, this region becomes connected to other areas that represent the sounds of speech. This supports an approach to teaching reading based on correspondences between the letters that represent sounds and the sounds themselves (the so-called grapheme-phoneme correspondence) rather than whole-word recognition. Therefore, cognitive neuroscience supports the early teaching of mastery of the sounds, leading to a detailed analysis of sound-print correspondence.

New technologies may also provide new ways to reveal more of what is occurring in the classroom, enabling a deeper understanding of issues related to learning or teacher practice in real-world school settings. For example, in a current study of the Australian Science of Learning Research Centre, over 600 students in primary and secondary schools in Brisbane are wearing wristbands to measure skin responses driven by the brain that are related to cognitive engagement, alertness, and stress levels. This study draws on computational methods (typically used in brain imaging) to examine “connectedness” between students, based on the degree to which they show the same biological responses at the same time, and are therefore commonly engaged (Gillies et al., 2016). Even in the real world setting of authentic classrooms, we can combine neuroscience and educational research to gain a richer understanding of how pedagogy or teacher practice influences the quality of education.

Third, if teacher training and development courses can include a basic grounding about how the brain

# NEURO MYTHS

Common myths surrounding education and learning



## How much of our brain do we use?

We mostly only use 10% of our brain.



## Learning styles

Individuals learn better when they receive information in their preferred learning style (for example, visual, auditory, or kinaesthetic).



## Coordination exercises

Short bouts of coordination exercises can improve integration of left and right hemispheric brain function.

learns, this promises to empower teachers to approach their own practice more scientifically. Teachers have a unique professional responsibility, every day, to influence the structure, functioning, and connectivity of young brains; this gives them a justifiable interest in understanding the processes involved. They constantly adapt their teaching to the learner(s) and the context, applying their own theories about their students' mental processes and how they can influence these processes to scaffold learning (Mevorach and Strauss, 2012). Thus, a scientific understanding of learning should be regarded as fundamental to every teacher's work. It has been said that trying to teach without understanding learning processes is a bit like trying to fix a washing machine without knowing how it operates (Dehaene, 2009). Of course, teachers are supporting learning behaviors that are much more complex than washing machines.

A scientific understanding of learning is also crucial for ensuring educational reform in a culturally diverse world; respect for such reform is emphasized by the Education 2030 targets, especially Target 4.7 (UNESCO and UNICEF, 2015). The ways that teachers respond to top-down reforms necessarily involve their own process of cultural adaptation; they integrate their own reflections, attitudes, and behaviors with the recommended changes (Berry, 2003). In other words, teachers will always adapt what they are given and make it their own. This undermines any belief that a one-size-fits-all approach to education reform can ever entirely succeed. The success of any reform will always rely,

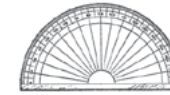
in large part, on teachers' own interpretation of how learning works and, therefore, on their understanding of how best to adapt ideas for their own students.

Although psychology and neuroscience work for and with each other, neuroscience is revolutionizing our understanding of learning by revealing a fresh perspective that combines mind and brain. Key concepts such as ability, disability, learning preferences, creativity, flexibility, and even intelligence, to name a few, can be described in the new light of differences in how individual learners' brains work and how they adapt to their physical and social environments. Many factors, within and beyond the classroom, 'sculpt' the unique brain of an individual learner. This sculpting starts *in utero*, long before the child enters school, and also continues outside of school. Neuroscience is confirming that education is a major tool for this brain-shaping process, and for improving the transfer of knowledge across groups and historical time. Neuroscience is also introducing new dimensions that have not been linked, either traditionally or explicitly, to classroom learning, such as emotion, and underlying environmental, genetic, evolutionary, and biological variables; all these factors are potential constraints but also potential springboards for acquiring human learning and knowledge.

Of course, many challenges emerge in efforts to bridge the divide between education and the sciences of mind and brain. Some have expressed concern that this might lead to the type of 'brain-based learn-

ing' programs that were popular during the 1970s and 1980s—and that helped generate some of the neuromyths we have today. However, it is important to discriminate between these unscientific approaches and modern ventures that involve collaboration with authentic science. Indeed, this difference provides a strong argument for including the voice of authentic science in education, in order to support educators and policy-makers in discriminating between what is, and is not, authentic science. Others have suggested that psychology, rather than neuroscience, should inform education. This reveals a misunderstanding, however, since the neuroscience that is relevant to education is chiefly cognitive neuroscience, which has psychology at its core. While psychology builds theoretical models to explain and predict behavior, cognitive neuroscience validates and constrains such models, by demanding they align with evidence of concrete changes in brain function.

Perhaps the greatest challenge in this venture will be the dialogue itself: when it comes to discussing learning, education and the sciences of the mind and brain can employ different concepts and terms—almost a different language. For that reason, close dialogue and collaboration between experts in both fields are essential. Initiatives such as the IBE-UNESCO/IBRO fellowships are an important means to ensure this dialogue. Work has only just begun, but it is hoped that a more scientific understanding of learning will be both illuminating and empowering, for both science and education.



## Left or right?

Differences in hemispheric dominance (left brain or right brain) can help to explain individual differences amongst learners.



## Too much sugar

Children are less attentive after sugary drinks and snacks.



## Shrinking brain

Drinking less than 6 to 8 glasses of water a day can cause the brain to shrink.

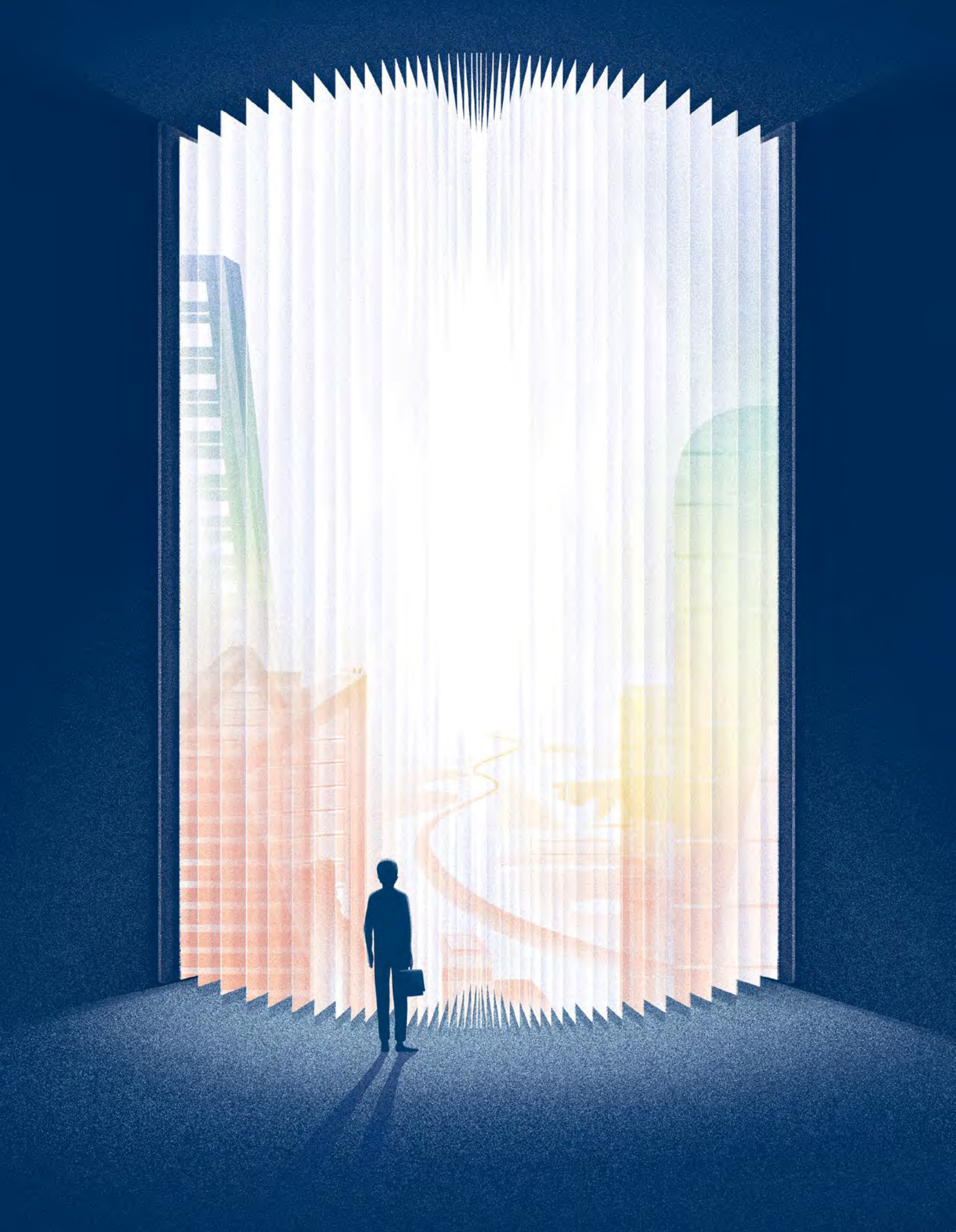


## Nature vs nurture

Learning problems associated with developmental differences in brain function cannot be remediated by education.

A scientific understanding of learning should be regarded as fundamental to every teacher's work.

The list shows some of the most popular myths amongst teachers reported in four different studies from the United Kingdom, the Netherlands, Turkey, Greece, and China.



# FUTURE

## COMPETENCES

*for*

## FUTURE

GENERATIONS

PREPARING LEARNERS FOR THE FUTURE WE DON'T KNOW

*by*

**Mmantsetsa Marope**  
Director of the IBE

*As we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns —the ones we don't know we don't know. And..., it is the latter category that tend to be the difficult ones.*

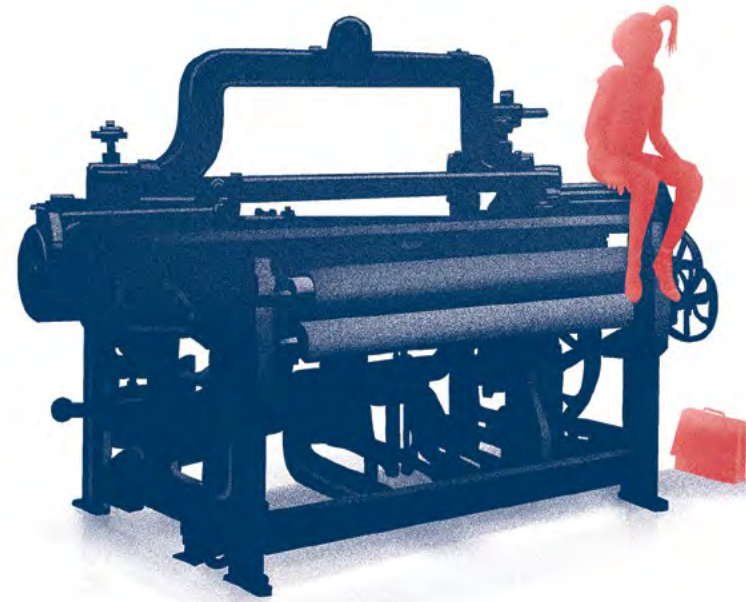
Donald Rumsfeld  
News briefing, U.S. Department of Defense, February 12, 2002

## THE FIRST

### Industrial Revolution

through the introduction of mechanical production facilities with the help of water and steam power.

Mechanical loom  
1784



## THE SECOND

### Industrial Revolution

through the introduction of the division of labor and mass production, with the help of electrical energy.

Assembly line  
1870



## THE THIRD

### Industrial Revolution

through the use of electronic and IT systems that further automate production.

Programmable logic controller  
1960

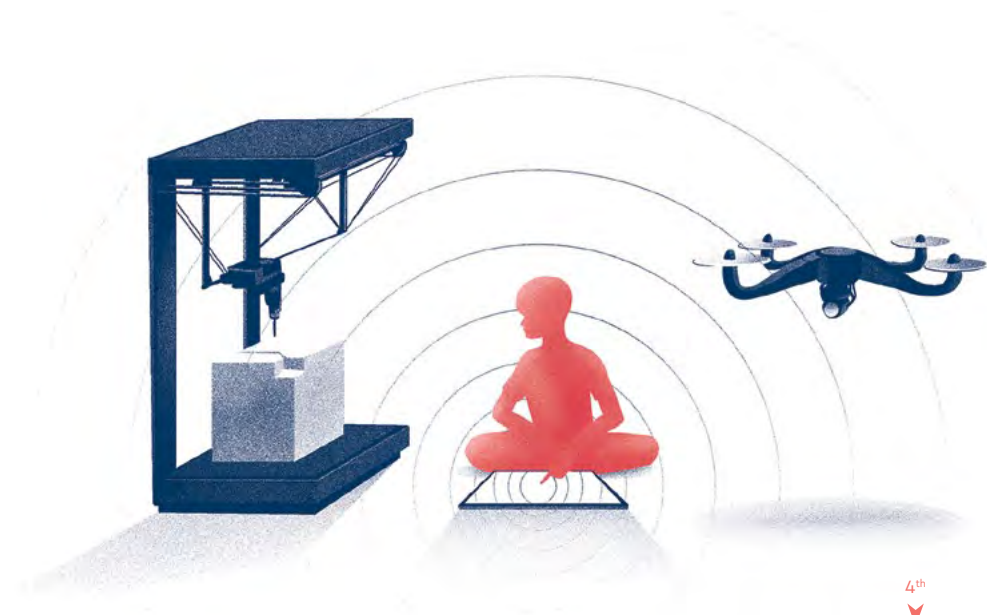


## THE FOURTH

### Industrial Revolution

Through the use of cyber-physical systems, the internet of things, and networks.

3D printer  
1983



Change is the only constant in the 21<sup>st</sup> century. Industry 4.0 accelerates change, uncertainty, and complexity in the 21<sup>st</sup> century. Schwab (2015) aptly notes that Industry 4.0 is a technological revolution whose velocity, scale, scope, complexity, and transformative power are unlike anything humankind has experienced before. Propelled by technological breakthroughs, the world is described less and less through historical epochs that last decades. More and more, it is described through ‘revolutions’ of unparalleled velocity and unknown transformative power. At the start of this century, the technology and information revolution was all

the rage. By the second decade, the ‘industrial revolution’ had taken over. The world is abuzz with comparisons of the first, second, third, and fourth industrial revolutions, and forecasters are already talking of the fifth. The lag time between each revolution is shrinking, while the complexity between one and the next grows exponentially.

#### But what is Industry 4.0?

Consensus is emerging on the general markers of Industry 4.0 and what sets it apart from previous industrial revolutions other than its pace, complexity,

*Above:*  
From Industrie 1.0 to Industrie 4.0:  
Comparing the four industrial revolutions.  
*Source:* DFKI (2011).

velocity, and transformative power. It is commonly characterized as an era where physical objects—machines, modes of transport, buildings, equipment, etc.—as well as processes and facilities, have sensors and embedded integrated systems that enable them to communicate via the Internet and to use Internet services. This phenomenon is referred to as the Internet of Things (IoT) or the internet of things, data, and services (Germany Trade and Invest 2014).

These “things”, also referred to as cyber-physical systems (CPSs), are equipped with adaptable sensors that enable them to scope their environments, access

globally available data, analyze and interpret them to predict failures, configure themselves and adapt to pertinent elements of their changing environments (ibid). They are intelligent “things” that can act on the results of their analyses. Through their integration and connectivity, they are also able to share the results of their analysis through the Internet. This “intelligence of interconnectivity” is transforming the workplace. Intelligent machines are headed toward autonomous action, and the management of production throughout the whole value chain. Future machines will go beyond just processing products and will also commu-

THE  
**NINE**

Technologies  
Transforming Industrial  
Production



The 4th Industrial Revolution will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships.

*Klaus Schwab, The Fourth Industrial Revolution: What it means, how to respond.  
World Economic Forum, 14 June 2016.*

Industry 4.0 is about more than just avant-garde production technologies. It is about how technology will more insidiously permeate all facets of life.



The Cloud



Augmented Reality



Autonomous Robots



The Internet of things



Big Data



System Integration



Cyber Security



Additive Manufacturing



Simulation

nicate with the product to perfect and optimize production.

Industry 4.0 is already fueling demands for new competences in the workplace. Industry 4.0 frontline workers must be capable of working with new forms of human-machine interfaces. They must efficiently manage production processes executed by intelligent machines in smart factories. Back office workers must be innovators, designers, analysts, and developers of the sensors, open systems, big data, connectivity, virtual communication systems, etc.—people who can sustain the Industry 4.0 production paradigm. Industry 4.0 also demands senior experts and managers who can guide the work of technologists, for example, by clearly articulating the ultimate purpose of their smart factories, creating innovative products, designing production models, and positioning themselves competitively.

For future employees, this is a huge improvement from Warren Bennis' prediction that the future factory will have three employees: a machine, a man, and a dog. The machine will be there to do the work, the dog will be there to keep the man from touching the machine, and the man will be there to feed the dog. The Industry 4.0 “man” will do more than just feed the dog!

#### Pervasiveness of Industry 4.0

Industry 4.0 is about more than just avant-garde production technologies. It is about how technology will more insidiously permeate all facets of life. “It will change not only what we do but also who we are... our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health” (Schwab, 2015). It will permeate all domains of life including the private, humanistic, social, cultural, physical, digital, biological, analytical, educational, security, and ethical. It will dominate workplaces, tools of work and ways of working. It will transform the way we learn and will make learning anytime and anywhere a reality for most people on earth. For those who are prepared, opportunities abound. For those who are not, the risk of falling behind is huge, and the effort to catch up is daunting.

#### Are education systems preparing learners for the future we don't know?

While consensus on the broad markers of Industry 4.0 is emerging, details on the look of the future remain unknown. Unknown as the future may be, it is a future for which we must prepare. Naturally, education and learning systems are expected to prepare people for Industry 4.0. On global, regional, and national platforms, the raging debate is on the readiness of education and learning systems to prepare learners—young and old—for this unprecedented change. If the systems are not ready, then what is required to ready them? This debate fits squarely into that on the role of future curricula. It raises questions on what people should learn in Industry 4.0 and for what purpose.

Source: BCG (2015).

## The future curriculum

Changing demands for competences in the workplace have direct implications for education in general, and for curricula in particular. Industry 4.0 accentuates the need for curricula that can enable learners to acquire and effectively deploy multifaceted, transdisciplinary, technologically savvy, and integrated competences. Not surprisingly, education systems are fast adopting competence-based curricula orientations.

The IBE advocates a paradigm shift on curriculum that recognizes the need for curriculum to take on many roles: it must lead as well as adapt to change; it must also balance stability with agility, respond to predictability and uncertainty, and balance the instrumentalist with the core functions of education. The paradigm also calls for the recognition of eight facts about curriculum. It is (i) the first operational tool for putting into effect policies on the relevance of education to development; (ii) an enabler of lifelong learning; (iii) an integrative core of education and learning systems; (iv) a determinant of key cost drivers in education systems; (v) a force for social transformation; (vi) a force for social stability, (vii) a determinant of the quality of education and learning; and (viii) a lifelong learning system itself.

Accepting the first precept of the new paradigm demands that we adopt a competence-based approach to curriculum design, development and implementation. To be development relevant, curricula must enable learners to acquire the competences they will require to meet challenges and take up opportunities in the ever-changing 21st century contexts, the most immediate of which is Industry 4.0. Sustaining development relevance in the face of fast and constant change requires that curricula themselves be lifelong learning systems (precept viii), capable of constant self-renewal and innovation. Without this precept, curricula are at risk of propagating obsolete competences that are not connected to their contexts. To mitigate this risk, the IBE will establish a global observatory with foresight and anticipatory capacity to ensure that curricula remain relevant to development.

But wait! While change is inevitable, we should be cautious about the potentially destabilizing impact of constant curricular reforms in the name of contextual responsiveness. Equally, due effort should be made to safeguard the core functions of education and learning, even as education and learning systems pursue their instrumentalist functions in the name of relevance. Rapidly changing contexts therefore demand very delicate balances among the key precepts of curriculum design.

In the new paradigm, competence is defined as a developmental capacity. People must be able to interactively mobilize information, data, technology, knowledge, skills, values, and attitudes, and then use them ethically to engage effectively and act across diverse 21st century contexts for individual, collective, and global good.

This definition acknowledges that it is no longer sufficient to enable learners to just acquire discrete bodies of knowledge, skills, values, etc. It is critical that learners can intelligently make connections across elements of competence, and then integrate them and

## CURRICULUM PARADIGM SHIFT

1

The first operational tool for putting into effect policies on the relevance of education to development.

2

An enabler of lifelong learning.

3

An integrative core of education and learning systems.

4

A determinant of key cost drivers in education systems.

5

A force for social transformation.

6

A force for social stability.

7

A determinant of the quality of education and learning.

8

A lifelong learning system itself.

In the new paradigm, *competence* is defined as a developmental capacity. People must be able to interactively mobilize information, data, technology, knowledge, skills, values, and attitudes, and then use them ethically to engage effectively and act across diverse 21st century contexts for individual, collective, and global good.



apply them interactively, to respond to contextual demands as well as to change their contexts. What learners learn is necessary, but no longer sufficient. What is most critical is what they can do with what they have learned and what they can do across the fast-changing contexts of the 21st century in general and Industry 4.0 in particular. In sum, future curricula have to reflect competences that prepare learners for the future we don't know.

### But what are those future competences?

The framework on the next page illustrates the espoused definition of competence. It lists elements that interact in application to manifest future competences: (i) information; (ii) data; (iii) technologies; (iv) knowledge; (v) skills; (vi) values; and (vii) attitudes. It presents future competences in six macro-level categories: (i) lifelong learning; (ii) multi-literateness; (iii) trans-disciplinarity; (iv) self-agency; (v) interacting with others; and (vi) interacting in and with the world. The six macro-level competences are considered universally relevant. Because of their universality, they are quite stable. They are what give curricula stability across transformations and reforms. They are the bigger picture and the bigger why of a curriculum.

Beyond curriculum stabilizers, the framework presents examples—not an exhaustive list—of specific or micro-level competences that contribute to the macro-level ones. Micro-level competences are mostly adaptable to context; they are what allow curricula the agility to be contextually relevant. For instance, global citizens of the 21st century absolutely must be multiliterate. However, different contexts demand different types of literacies; consider that Industry 4.0 puts a strong emphasis on digital, data, and ICTs literacies. Multilingualism is equally essential, but different contexts require different languages. Coding is gaining more prominence as a major language in Industry 4.0.

The framework also presents examples of the individual, collective, and public 'good' that should accrue from having certain competences; these show the impact of competence. Notably, many of these 'goods' would accrue from different categories of competences. The framework only suggests which 'goods' are closely associated with which categories of competences.

### LIFELONG LEARNING

The most critical competence in the 21st century is knowing how to learn. What is learned remains important, but in fast-changing contexts, it is at a high risk of becoming obsolete, and/or quickly forgotten. Knowing how to learn has more premium and regenerative capacity than what is learned. Lifelong learning is the source of innovations, adaptability, agility, and human resilience, especially in fast-changing contexts.

### SELF-AGENCY

The 21st century demands people to be self-benefiting agents. This requires the facility and empowerment to analyze the demands of one's environment and to apply knowledge, skills, technologies etc., to take a self-benefitting and self-fulfilling action. This requires many of the adaptable competences provided in the framework below.

### INTERACTIVELY USING DIVERSE TOOLS AND RESOURCES

Increasing complexity also demands effective and interactive use of a range of tools and resources relevant for the task at hand. These resources go beyond the constituent elements of competence to include physical and virtual resources, the interface of the self and machines in smart factories of Industry 4.0, the use of multiple technologies, of time, etc. Responsible use of tools and resources is also at the heart of responsible consumption and sustainable lifestyles, which contribute to sustainable development.

### INTERACTING WITH OTHERS

Even with multi-literateness and trans-disciplinarity, the level of integration and complexity in the 21st century requires working with others. This is also a key competence for social cohesion, harmony, justice...and ultimately for a peaceful and reconciled future.

### INTERACTING IN AND WITH THE WORLD

This competence enables people to straddle many contexts and to interact effectively and act across a range of contexts from the local to the global.

### TRANS-DISCIPLINARITY

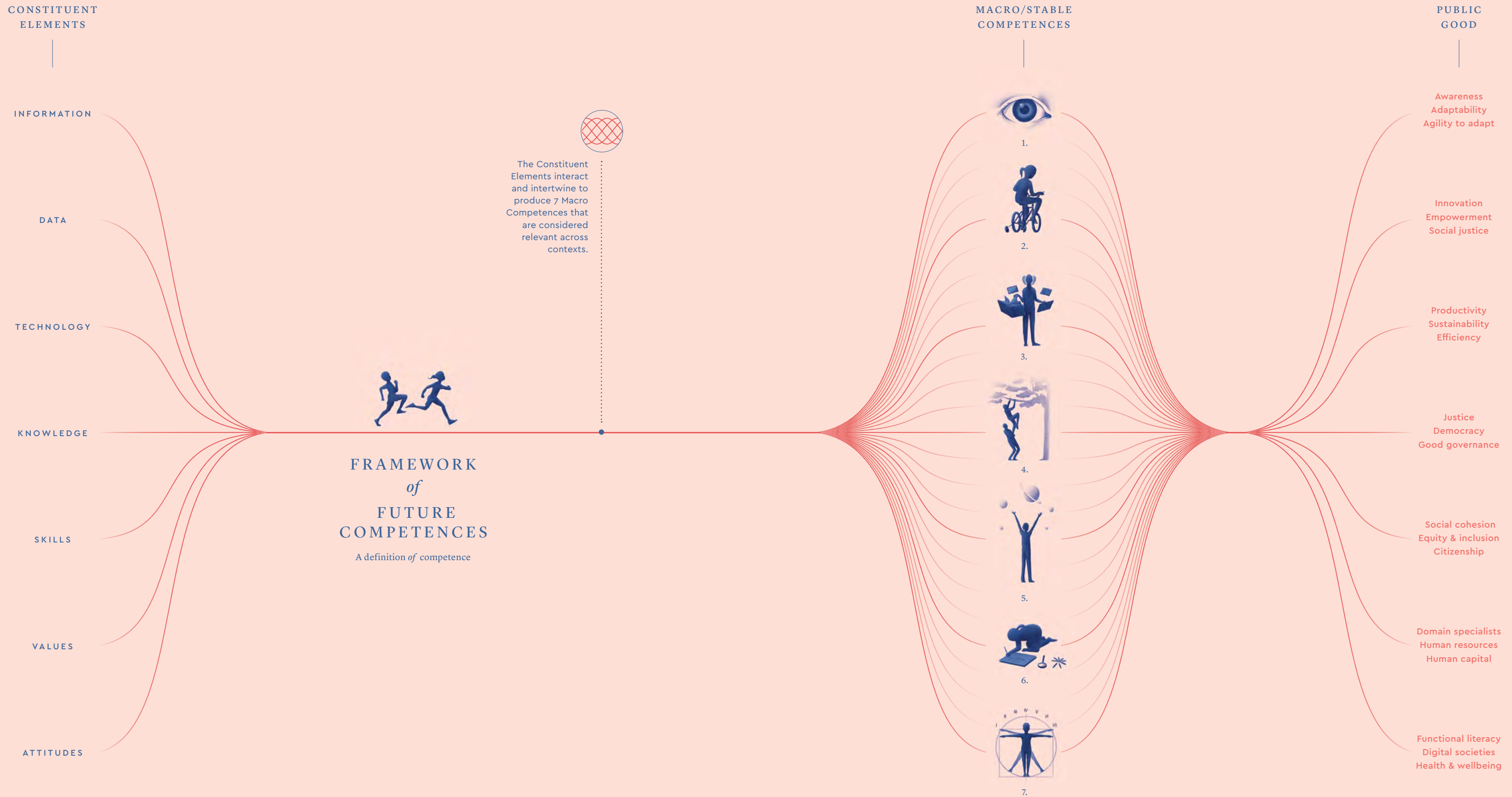
Deepening complexity requires more and more integrated solutions that call on knowledge of multiple disciplines and multiple domains of knowledge. Application is at the heart of competence, and an emphasis on application demands a deeper command of the disciplines. As with literacies, deep and narrow specialization will remain essential, especially in workplaces, but narrow specialists will be tremendously challenged in daily life where making an impact will demand a decent level of understanding of several disciplines.

### MULTI-LITERATENESS

The 21st century requires people to have multiple literacies and to deploy them as needs arise. Basic literacy (the three Rs) is no longer adequate. It is perhaps more appropriate to speak of fundamental literacies. These go beyond the three Rs to include examples listed in the framework. These are fundamental in the 21st century and even more so in Industry 4.0. Literacies are also not dichotomous; in this century no one is simply either literate or illiterate. Instead, we are all on a continuum ranging from entry level to great expertise. Industry 4.0 will put more demand on people to be multi-literate. Within these literacies, different contexts will demand different levels of skills and people will deploy them differentially according to the demands of each context.

While presented as a list, these core competences are interdependent and mutually reinforcing. Impactful action often demands simultaneous deployment of multiple competences.

Adopting a competence-based approach to curriculum—and more importantly, implementing such an approach, and then maintaining a futuristic perspective to curriculum—has far-reaching demands on countries' capacities. It has transformative implications for the future of not only the curriculum, but also its key implementation processes—teaching, learning, assessment, and resourcing. But no country can afford to be left behind.



The seven stable macro competences, listed here in order of importance, entail several different micro adaptable competences.

**1**  
**Lifelong learning**  
Curiosity  
Creativity  
Critical thinking  
...

**2**  
**Self-agency**  
Initiative/Drive/Motivation  
Endurance/Grit/Resilience  
Responsibility  
...

**3**  
**Interactively using diverse tools and resources**  
Impactful use of resources  
Efficient use of resources  
Responsible consumption  
...

**4**  
**Interacting with others**  
Teamwork  
Collaboration  
Negotiation  
...

**5**  
**Interacting in and with the world**  
Being local and global  
Balancing rights with privileges  
Balancing freedoms with respect  
...

**6**  
**Trans-disciplinarity**  
STEM  
Humanities  
Social sciences  
...

**7**  
**Multi-literateness**  
Reading & writing  
Numeracy  
Digital  
...



# GAVIN DYKES

On Education in the Fourth Industrial Revolution

Gavin Dykes is Program Director, Education World Forum; and Co-founder and Director, Education Fast Forward (EFF). He is an independent education and technology advisor who works with governments, agencies, major corporations, and institutions across the world, on education policy and strategy.

Program Director, Education World Forum. Co-founder and Director, Education Fast Forward.

**You play a crucial role in the success of the Education World Forum, which in 2017 included an Education Fast Forward debate focused on “Preparing students for the fourth industrial revolution”. Please tell us a bit about the relevance of this topic and how it was received by the 80 ministers of education attending the forum.**

Preparing students for success in their lives is one of the main purposes of learning and teaching. Policy is, at least, one of the influences on education we prepare and provide. I’m not sure that it has ever been true that things changed slowly. Whether true or not, they certainly appear to be changing quickly now, as graphs comparing the adoption of radio, TV, computers, Internet, and mobile phones show. It would be wrong to consider technology as the only change. Fusions across subjects and practice seem to have accelerated change. Ever-changing relationships and new forms of interaction, through social networks and connectedness, have increased acceleration.

Discussions and debates that help us all make sense of this changing world, that encourage collaboration and exchange, and reflections on policy developments across the world, I hope, attract ministers to the Education World Forum. Participation in discussion and debates at the forum, and the actions that have followed, indicate how the subject was received. Continuing and growing discussions of 4<sup>th</sup> Industrial Revolution issues and their influence on education suggest that interest in this area and the influences it heralds are unlikely to disappear quickly.

**During the recent Education World Forum, it was noticed that, despite new technology, PISA results showed science performance in school had not**



**improved. How do you explain this situation and what should be done to fix it?**

I started my career as a civil engineer and recall frequent debate around how to improve the standing of and interest in engineering. More recently, I was delighted to see engaging exhibitions on bridges and tunnels at the Institution of Civil Engineers. Engaging because the exhibitions communicated some of the excitement, and provided building blocks for children to create and construct their own solutions to bridging problems. That activity brought engineering from some disconnected mysterious exercise into something that young people could get close to and explore in their own way.

With science education and performance, I wonder if there's something to learn from that civil engineering experience. Learning about the implications of science and the benefits that it can bring to your own life might help. Encouraging children to ask their own questions and to test and explore potential solutions might engage their interest more. Learning about scientific method and the importance of practical experimentation, data gathering and analysis of evidence, and learning about science's interaction with community and society might provide a way to link it better to personal circumstances and lives, and might help engage, delight, and excite interest, participation, and inquiry among our students.

**Nobel laureate economist Joseph Stiglitz once said that "successful and sustained growth and development requires creating a learning society". Why does learning, and particularly learning literacy, matter in an innovation economy?**

Part of the key to creating a learning society might lie in *The Atlas of Economic Complexity* by Ricardo Hausmann et al. There the authors argue that "most products used today require more knowledge than can be mastered by any individual". Think of a car or a plane, and the truth of that statement becomes obvious. As a result, people with different capabilities need to interact with each other, learn from each other and find ways to work together. We have tended to think of learning as an individual pursuit, but Hausmann and Stiglitz, among others, take us to a world in which the knowledge capital of nations becomes important. At a slightly smaller scale, some argue that the reason for the success of cities is similar. The great thing about cities is that they may attract people with a similar frame of mind, and the distances between them are small, so that increases the chances of messages and understanding getting through. So just like chips on a circuit board, if the distances between them are small, information can pass more quickly. If you look at innovative companies and start-ups, you'll find a similar picture.

For an innovation economy, perhaps the first step is getting the components (the people) together and easy to find. The second step is to help communications to happen well, and the third may be to encourage the



*Above:*  
Gavin Dykes, at the IBE consultation meeting on *Future Competencies and the Future of Curriculum*, Marbach Castle, May 2016.

Part of the key to creating a learning society might lie in *The Atlas of Economic Complexity* by Ricardo Hausmann et al. There the authors argue that "most products used today require more knowledge than can be mastered by any individual". Think of a car or a plane, and the truth of that statement becomes obvious. As a result, people with different capabilities need to interact with each other, learn from each other and find ways to work together.

people involved to learn from each other. That's where learning literacy comes in. Some argue that learning literacy is more important than established knowledge. Learning literacy allows you to learn on the fly. In my view, it's not about looking back, or following a list of instructions. It's more about looking at what's in front of you and using that as a foundation for new ideas and innovative thinking.

#### **How is the 4th Industrial Revolution transforming education and learning?**

Collaboration is becoming a greater focus and receiving more attention. That collaboration can be among students, among teachers, or both. Use of technology is helping to drive some of that collaboration, and collaboration is driving some use of technology. Some of that collaboration may be affected by the emergence of this industrial revolution.

Development of competency-based curricula and learning by doing could also be associated with the fourth Industrial Revolution. Andreas Schleicher observes that in the future we will be rewarded not for what we know, but for what we do with what we know. Perhaps with what we learn from what we do. That relates here.

Exploration and discussion of what we can do with technology is having an impact and relates to the 4th Industrial Revolution. I think of the development of 3D printing. 3D printers are additive, making products by building them up in layers. That means we can produce things that were impossible to make before, when industrial processes were invariably about cutting and stamping. In addition, it can now be economic to make single or small numbers of components. This can change formerly accepted industrial practice. Exploring opportunities around these innovations has started in schools and could also be said to be part of the fourth Industrial Revolution. More important than the technology or discussion of it, is the engagement of student minds in what this might mean; it provides opportunities to engage student ideas and innovations.

Increasing consideration of subjects as not being separate and individual, but as linked and collaborative, seems central to the 4th Industrial Revolution's influence. We also have artificial intelligence, which is increasingly finding its way into education, learning, and our times.

**“Amplifying quiet voices” is a recurring motif and emblematic of your work, be it in the Education World Forum, Education Fast Forward, or the Asian Summit on Education and Skills. Why would developing learners’ voices and building around student aspirations be more important today than in the past?**

For success now, and most likely in the future, we will have a greater need for people who are creative, who have the ability to think for themselves and the strength to either admit their failure or argue their corner cogently and appropriately. Such people will be bet-

*Below:*  
Gavin Dykes, learning with music class students and fostering mutual understanding, Beijing.

**Fostering collaboration and mutual understanding are powerful and critical foundations on which to keep building. They can help us address the biggest challenges we face, especially the global challenges reflected in the Sustainable Development Goals.**



ter equipped for a world where many repetitive jobs are no longer available. A world where it seems likely that social and commercial enterprises based on new ideas will play a growing role. Encouraging learner voice and building learning around student aspirations seems especially important in this context. I believe student voice can lead to emergent leadership and the ideas and skills of enterprise. Recognizing student aspirations can help students' sense of purpose, inner motivation, and understanding of what is possible.

**The focus of your work has also been on supporting development of mutual understanding and collaboration among all of education's interested stakeholders. Why are these two elements so important in the 21st century?**

Mutual understanding and collaboration can help us address the biggest challenges we face, especially when we consider, for example, global challenges reflected in our Sustainable Development Goals.

On the other hand, isolation is damaging, in terms of our own personal welfare. I think that there's a lot to be said for the positive psychology put forward by Martin Seligman and others, in which doing something good for other people is not just a nice thing to do, but something that contributes to our own well-being.

At another level, economic arguments, as I mentioned earlier, suggest collaboration is required and a driver for innovation and improvement. All in all, fostering collaboration and mutual understanding seem to me powerful and critical foundations on which to keep building.

As we move further into the 21st century and some of the activities of previous times become something for the history books, we need to work at things to take their place. Patterns of community-based activities, ways in which we meet people and gently keep up to date with them, are changing and influenced by the adoption of technologies. We need to take care of people who become excluded by such changes, and we need to ensure there are plenty of alternative ways to socialize, to collaborate, and to build mutual understanding.

**Fast forward to the future. What will the Fifth Industrial Revolution look like, and how will it affect education and learning?**

I suspect we have a fair way to go before the 4th Industrial Revolution and its ripples recede. However, that's just dodging your excellent question.

*The Empty Brain* is, I think, a thought-provoking article by Robert Epstein published on aeon.co. The article discusses the view that your brain does not process information, retrieve knowledge, or store memories. In short: your brain is not a computer. It goes on to explain that over centuries we have used the latest in technology to try to understand how the brain might work. Epstein cites George Zarkadaris's book *In our own Image*, which begins with the Greeks who used the 'humours' and hydraulic models to explain human intelligence.

Then in the 1500s it was springs and gears. In the 1700s electricity and chemistry provided the metaphor. In the 1800s how our brains worked was linked to the telegraph. And then of course came computers. None of these has brought us much closer to understanding how the brain really works.

That journey through the ages reminded me a little of the journey through industrial revolutions. I wonder if understanding of the brain has any chance of leading to the next industrial revolution, the 5th. If we ever understand enough about the human brain, its extraordinary capacity and wonders, then perhaps we could use it to build on the fusion of physical, digital, social and biological worlds that the 4th Industrial Revolution has promised. It might be a big step up from the current technological developments.

If that were the focus of the 5th industrial revolution, what would please me most is people being right at its center, and I'd wish for it to be all people, their welfare, and their success in community.

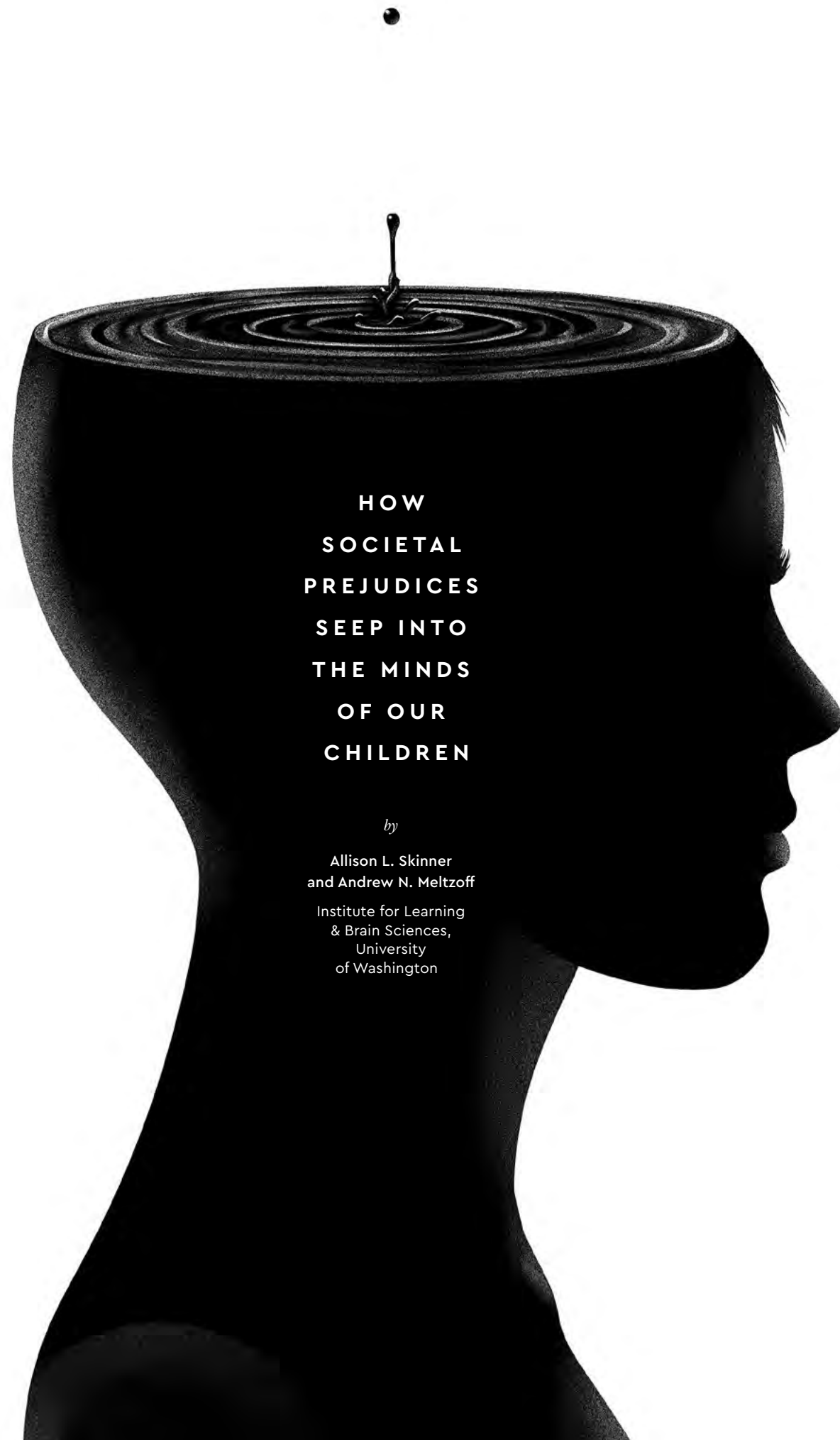


# H W CAN WE

**How can we learn to live together, at a time when hatred, conflict, and violent extremism are widespread?**

**How can we build peaceful, just, and cohesive societies?**

Leading development psychologists and experienced educators reflect on and offer answers to these critical questions.



HOW  
SOCIETAL  
PREJUDICES  
SEEP INTO  
THE MINDS  
OF OUR  
CHILDREN

by

Allison L. Skinner  
and Andrew N. Meltzoff

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In the 21<sup>st</sup> century world, where prejudice can lead to hatred, xenophobia, violence, and extremism that claim untold lives and displace millions of people, it is never too early to combat the onset of prejudice through education. Allison Skinner and Andrew Meltzoff tell us how prejudices seep into the minds of our children and what can be done to stop this.

We want our children to lead happy and productive lives. We want them to grow up to be fair-minded, moral adults who are not biased. Our children are not born with biases against other people, but many children become biased at a surprisingly early age. How do they 'catch' the biases from adults and peers in their culture? What can we do about it? New research is beginning to point to answers that may help parents, educators, and policymakers.

Scientific studies show that young children readily form biases in favor of their own social groups. As early as preschool, and increasingly in elementary school, children begin to group other people into social categories based on gender, ethnicity, language, and nationality—favoring their own group over others (Hailey and Olsen, 2013). Moreover, children who are members of a socially dominant group are particularly likely to develop biases favoring their own group. All too often this bias toward the in-group (those people in the child's social group) translates into prejudice against the out-group (those people who come from outside of the child's own social group). Yet providing children with education about the groups around them and how to navigate intergroup relations can go a long way in curbing these biases before they form firm roots. Here we review what science says about common contributors to prejudice among children, and address the ways education can be used to rein them in.

One thing we know about the development of bias in children is that negative experiences with members of out-groups can lead children to develop prejudice. Children who have hostile interactions with members of other social groups develop strong prejudices against them. Thus, if experiences are disharmonious, first-hand exposure to members of other groups tends to increase children's prejudices against those groups (Kang and Inzlicht, 2012). Even exposure to negative depictions of members of other groups—for example, through media and other messaging—can create or

heighten prejudice among children. Children who are told that out-group members do not like the child's own group or that out-group members are 'mean' will to develop prejudices against members of that group. Empirical studies show that this process begins among children as young as 4 years of age.

Another factor that influences young children's prejudices is their parents' attitudes. Children's prejudices tend to be related to the prejudices held by their parents, although this is hardly a direct one-to-one match (Degner and Dalege, 2013). It likely varies according to how explicit parents are in communicating their biases to their children. Negative messages parents provide about other social groups increase children's intergroup prejudices.

A surprising new finding is that children can 'catch' bias from adults even when the adults don't explicitly teach it to them. Adults' *unspoken* biases directly and powerfully influence the prejudices of the children around them. Parents may not explicitly share their attitudes about sensitive topics like race with their children, either because they do not want to influence the attitudes of their children or because they are unaware of their own biases (Mooney, 2014). But research shows that unspoken biases may still be influencing children. We recently discovered just how powerfully prejudices can be communicated from parents to young children through nonverbal signals. Through this research we have begun to unlock the mystery of how your young children 'catch' biases (Skinner, Meltzoff, and Olson, 2016).

We found that children are social detectives. They are searching for clues, scraps of evidence, about whom we adults like and don't like, who is considered 'good' in the culture and who is shunned and considered 'bad' by others in the culture. Their detective work does not stop with analyzing what we say verbally. It also extends to what we do and how we act. We found that when adults 'leak' nonverbal messages about bias and prejudice, our little children pay attention to those nonverbal cues. Whether they know it or not, parents, teachers, and others in society provide subtle clues about how much they like and trust members of social groups through their facial expressions and body language.

In this recent study, we tested for bias in preschool children who were only 4 and 5 years of age. We discovered that children who saw adults display negative nonverbal signals toward another person subsequently expressed a bias against that person. Just from the fact that the adults scowled at a person and spoke to her in an unfriendly tone, the children 'caught' the social bias they were exposed to.

What is more, children did not just develop biases against the specific individual who was the target of the nonverbal bias. The children also became biased against a friend of that individual, who was portrayed as a member of the same group. This suggests that this process may be the foundation for larger intergroup prejudices. In other words, if children exposed to a bias against one or two members of a group readily generalize that bias to the rest of the group, this could explain how prejudices about gender, race, ethnicity,

**We want our children to lead happy and productive lives. We want them to grow up to be fair-minded, moral adults who are not biased. Our children are not born with biases against other people, but many children become biased at a surprisingly early age. How do they 'catch' the biases from adults and peers in their culture?**



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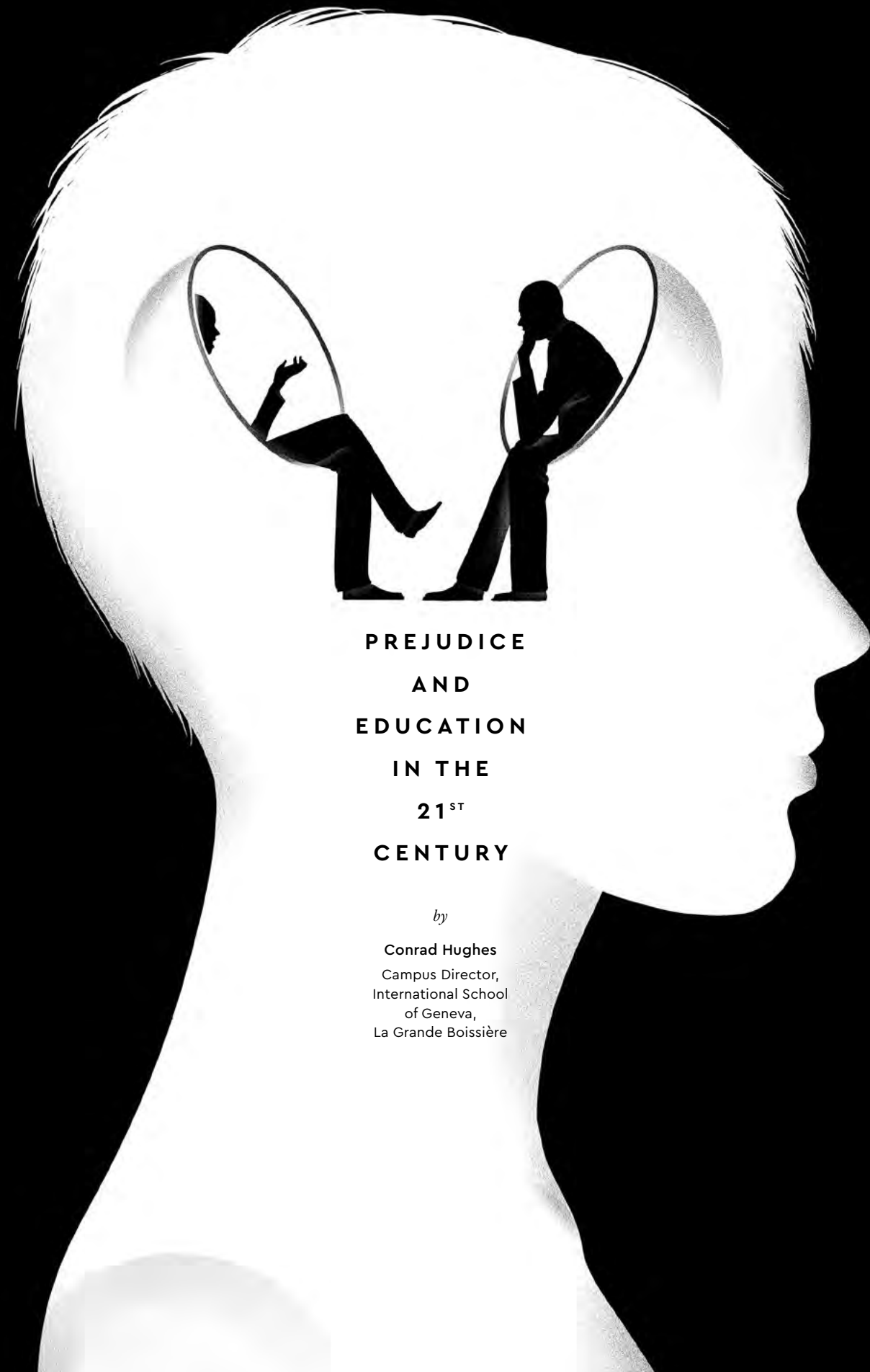
*Above:*  
Andrew Meltzoff studies  
how children learn.

and nationality are spread to children. If children observe their parents (or other adults, peers, or media) systematically displaying negative nonverbal signals, such as limited smiling or eye contact or a negative tone of voice, to members of a particular social group, that could lead children to develop prejudices against members of that group.

What can be done to combat prejudice from developing in the minds of young children? In order to address prejudice we must first pinpoint the factors that lead prejudice to develop. From there we can create strategies to counteract those factors. Although children readily develop biases against members of out-groups, carefully crafted education can reduce those prejudices. Scientific studies show that children who are exposed to positive representations of out-groups in media show lower levels of prejudice against members of those groups (Durkin et al., 2012). For example, children who see racially diverse groups of children depicted in the media go on to favor groups that are racially diverse over groups that are exclusively made up of racial in-group members. Explicit positive messages about other groups can also decrease intergroup prejudice. One study compared children who were told good things about the out-group (but ended up having a negative experience with them) to children who were told bad things about the out-group (but ended up having a positive experience with them). The children who had had a bad experience with the out-group but were told good things about them actually liked them more than children who were told bad things about the out-group (Kang and Inzlicht, 2012). So although negative experiences with members of other groups can increase prejudice, evidence suggests that positive messages can ameliorate these prejudices.

Although we cannot shield our children from prejudice, education and constructive exposure to out-groups can go a long way. One thing we can strive to do is provide children with positive messages about members of other groups and facilitate positive contact between children of different groups (Pettigrew and Tropp, 2006). As adults we can make a point of diversifying our own contacts as well, thereby modeling positive intergroup relations to children. Research has shown that children whose parents have friends of other races tend to be less racially prejudiced, and this is especially true of children who have seen their parents interacting with friends of other races (Pahlke, Bigler, and Suizzo, 2012; Vittrup and Holden, 2011). Importantly, our new research suggests that we can unconsciously communicate our own biases to our children through our nonverbal behaviors. This means that ultimately we, as adults, might want to be more careful about the prejudices we model to our children. Given how rapidly children catch social biases from the adults around them, we might begin to think about the messages we are sending our children through both spoken and unspoken channels.

We are educating our children through everyday interactions as well as through formal schooling. Children are learning how to treat others simply from watching and listening to us (Meltzoff et al., 2009). Our children are always learning—whether we know it or not.



**PREJUDICE  
AND  
EDUCATION  
IN THE  
21<sup>ST</sup>  
CENTURY**

*by*

**Conrad Hughes**  
Campus Director,  
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of Geneva,  
La Grande Boissière

Conrad Hughes  
takes the conversation  
further into the what  
and how of prejudice,  
as well as how 21<sup>st</sup>  
century education  
can combat prejudice.

Prejudice is a negative overgeneralization of another person or group. It comes from the Latin, meaning to pre-judge. Whereas a stereotype is a mere overgeneralization that one holds as an idea, prejudice takes the stereotype a step further by applying it negatively to real-life members of a social group in thoughts and language. When prejudice is translated into action, it can become discrimination or worse.

We are cognitively, socially, and culturally disposed to be prejudiced. Our brains work by classification and we tend to quickly reduce individuals to crude social categories in order to judge those individuals as friend or foe. This activity, in the early, reptilian part of our brain, happens more quickly than we are aware. Feelings of insecurity, threat, and fear often well up inside us and express themselves in the form of an instinct toward self-preservation which always prioritizes and favors the in-group at the expense of the out-group.

Even at the level of the cortex, where information is processed and we are capable of abstract thinking, deliberate evaluation, and weighted reflection, our working memory capacity is fairly weak, meaning that we struggle to hold onto pluralistic representations or multiple identities without forgetting some of them and reducing the thing perceived into a single entity. This is what happens when we reduce someone to one element of his/her being, for example, profession, gender, ethnic group, ideological preferences, beliefs, or nationality. Furthermore, we are perceptually predisposed to exaggerate differences between groups and minimize differences within groups, always imagining that we are like those in our group and different from those who are not in our group when in reality, differences and similarities might be the same within and across group members.

Therefore, like all sophisticated and powerful educational efforts, reducing prejudice requires a conscious effort to go beyond intuitive, lazy thinking and primal instincts; it is an act of the will involving critical thinking, self-analysis, metacognition, and deliberate selflessness—things that might not come naturally to us and have to be worked on.

## Prejudice on the rise



**Conrad Hughes**  
Campus Director,  
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Boissière

The second decade of the 21<sup>st</sup> century is full of paradox. On the one hand, one might argue that globalization and social media have brought people closer together than ever. Travel is far more accessible than it has ever been and material comfort is attainable for an increasing number of people. This would suggest that relationships across frontiers are easier to form than ever before. On the other hand, few could disagree that we have witnessed a surge of extremist thinking in right-wing demagoguery, xenophobic rhetoric, and fundamentalism across the planet. As the planet's biocapacity wanes, wealth and income inequality rise, and human resources become increasingly scarce, the idea of living together peacefully seems fragile.

Examples of prejudice and discrimination are so rife that one struggles to know where to begin. The US Department of Justice (2014) recorded over 220,000 cases of hate crimes every year from 2004 to 2012; the UK Home Office (Creese and Lader, 2014) reported that "in 2013/14, there were 44,480 hate crimes recorded by the police, an increase of five per cent compared with 2012/13, of which 37,484 (84%) were race hate crimes". Before Adolph Hitler's *Mein Kampf* was

republished in Germany in 2016, over 15,000 people had placed orders (Addady, 2016). The Black Lives Matter movement in the United States points to a sorry state of affairs while anti-Islamic rhetoric is at a height in Europe and the United States. Albinos, Aborigines, Roma, Jews, and homosexuals still suffer from severe prejudice across the globe, while women throughout the world are the victims of lower salaries and conjugal violence. We are also deep in the throes of an uninhibited, post-politically-correct type of prejudice where racist, xenophobic, misogynistic, and bigoted statements are made in the public forum in the name of a sort of aggressive, liberated freedom of speech.

The phenomenon of the Internet has allowed anonymized, disinhibited discourse to proliferate on postings and messages. Anyone knows by trawling through the comments posted at the end of an article or YouTube video that discussions quickly veer into extremist language and propositions, as if to suggest that there is a deep-seated need to engage in profanity and verbal violence as a type of expiation or catharsis. Furthermore, confirmation bias is easy: a determined user can find some form of reported



On the one hand, globalization and social media have brought people closer together than ever.

evidence proving one theory or another on the Internet, making it an easy repository of justification that the prejudiced person can cherry-pick at will. For example, statistics on crime are often used by right-wing politicians to slander ethnic minorities but are rarely put in their proper context of socioeconomic and demographic pressure.

## The contact hypothesis

In 1954, Gordon Allport articulated his contact hypothesis in *The Nature of Prejudice*, his detailed study of prejudice from the perspective of social psychology. The theory remains a reference because it has been tested extensively with significant results over more than 50 years. Allport's hypothesis states that we can lessen prejudice if people of different backgrounds come together and make contact, provided that four conditions are present:

- 1  
The group shares common goals.
  - 2  
There is clear intergroup cooperation.
  - 3  
Each person is valued in the group.
  - 4  
Authorities, law, or custom support the contact.
- We should add to these conditions the two most significant mediators that Pettigrew and Tropp (2008) found in their meta-analysis:**
- 5  
Contact should reduce and not exacerbate anxiety.
  - 6  
Contact should promote empathy and perspective-taking.



On the other hand, few could disagree that we have witnessed a surge of extremist thinking.

Social psychology tells us that if environments are created where people can work together as a team on a collective goal under clearly articulated values that celebrate the equal value of each person, prejudice will be reduced. However, if people of different backgrounds are thrown together without any mediating strategies, there is a high likelihood that they will resort to stereotypes, then to prejudice, then to anti-locution, and finally to violence, especially if the environment is highly competitive (as it often is in schools). Indeed, the intuitive idea that pluralistic or multicultural environments will lead to peaceful self-regulated appreciation of difference is wrong; ground rules are needed alongside a strong institutional message against prejudicial thinking and discriminatory practice.



## An education for less prejudice

The Delors Report (UNESCO, 1996) describes four pillars of education: learning to learn, learning to do, learning to be, and learning to live together. If these are the basis of meaningful education, then learning how to reduce prejudice is surely a fundamental, ongoing goal. Reducing prejudice means reducing barriers that stand in the way of self-awareness, social cohesion, open-mindedness, and the growth mindset needed to open new opportunities to work with different people.

In my recently published book, *Understanding Prejudice and Education: The Challenge for Future Generations* (Routledge, 2017), I synthesized research in social psychology, cognitive psychology, critical thinking, and international education to present a model that can be adapted and adopted according to context. Each area should be self-assessed using criterion-referenced descriptors. Four areas need to be emphasized at an individual level:

Reducing prejudice means reducing barriers that stand in the way of self-awareness, social cohesion, open-mindedness, and the growth mindset needed to open new opportunities to work with different people.



### EDUCATING BEYOND THE OTHER

Teaching international humanities and literature; deconstructing ideas of Otherness and stereotypes about culture, gender, ability, and other differences; making the complex psychological and phenomenological dimensions of perception clear to students; creating school environments that are not exclusivist.



### CRITICAL THINKING

Teaching students how to analyze positions, disaggregate postulates, categorize with well-informed criteria, challenge assumptions, and think through consequences wisely.



### THE CONTACT HYPOTHESIS

Schools must articulate values of equal status of all members of the community through group work that is goal-oriented, reduces anxiety, and involves regular contact. Furthermore, schools should strive to reduce aggressive competition between students, something that is arguably exacerbated by many grading systems.

**These four levels can be considered development allies: each spans a number of successive stages from basic and mono-dimensional to pluralistic and generalizable.**



### METACOGNITION

Teaching students how prejudice itself happens from neurological, cognitive, societal, and emotional points of view; making them aware of meta-stereotypes (assumptions about what others might think of themselves) and how the way they view themselves is conditioned.



### EMPATHY

Finding out about the plight of others; engaging in historical, literary, and artistic expressions of these plights; considering the perspectives of others openly; exchanging experiences with others through field trips, residences, and pedagogically-scaffolded service learning.



### PRINCIPLES OF INTERNATIONAL EDUCATION

Schools should aim to weave the following eight principles into their curriculum. This is because each one has the potential to reduce prejudicial thinking (Hughes, 2017, pp. 152–180). Note that these can be developed in any curriculum in the world.

- Service learning
- Bilingualism
- The study of world literature
- The study of international humanities
- Inquiry learning
- Reflection
- Concepts-based learning
- Theory of knowledge

We will never eradicate prejudice (it's in our DNA), but we can reduce it if schools, instructors, and learners can openly discuss what prejudice means to them and learn about other people and the world in a reflective, open-minded, pluralistic manner. If we wish to make the world a better place, then a sure place to start is with the way that human beings see and treat each other, something that can be made more humane, nuanced, and restorative if it is taken seriously in the educational agenda.





UNIVERSAL  
VALUES



LEARNING TO LIVE  
*together*

# Azerbaijan

A Living  
Example of Unity  
in Diversity

*by*  
Ambassador Vaqif Sadiqov

Ambassador Vaqif Sadiqov takes us into a country that practices multiculturalism, a country where people experience multiple religions, languages, and ethnicities every day. He takes us into a history that explains why Azerbaijan became a living example of unity in diversity. He calls on us to embrace universal values, and to foster dialogue and rapprochement between cultures, civilizations, and religions.



If we unite our efforts, we can prove that multiculturalism is alive and there is no alternative to that. Alternatives are xenophobia, Islamophobia, antisemitism, racism, discrimination. Multiculturalism is not a trend, it is the only way to make the world safer.

**Ilham Aliyev**  
President of Republic of Azerbaijan

# W

We are living in a critical global context, marked by unprecedented threats to peace and security. The international community must collaborate more seriously and effectively to reduce the dangers associated with wars and armed conflicts and their devastating consequences.

We are living in a critical global context, marked by unprecedented threats to peace and security. The international community must collaborate more seriously and effectively to reduce the dangers associated with wars and armed conflicts and their devastating consequences. We must also address many other phenomena: tense political conflicts and their implications for civil peace, widespread ethnic and religious conflicts that undermine stability, unprecedented movements of human populations accompanied by acute humanitarian crises, the growing trends of hate and racism in many places, and the flagrant violations of international law resulting from bellicose arrogance by states. These are the direct consequences of the growing number of inter- and intra-state conflicts, with acts of ethnic and cultural cleansing fueled by radicalization and violent extremism, acts that expose millions of men and women to immense suffering, with youth being the most affected.

The number of people displaced by conflicts and violence around the world is now estimated at 65 million, the highest figure since World War II. Around the world, some 130 million people are in need of humanitarian aid. Around the world, climate change, population growth, natural and human-made hazards, and weak political and economic systems continue to put people at risk. The solutions to the crises that have plunged these people into desperate hardship are neither simple nor quick.

The 2030 United Nations Agenda for Sustainable Development represents a new commitment to global action, inspired by the values and principles of the UN, and an integrated response to the cultural, social, economic, and environmental challenges of today. As the leading global entity in the field of culture, UNESCO is championing the cause of education for children and youth affected by crises. This is why it is necessary to embark upon the new 2030 Agenda to ensure inclusive societies for the present generation and the generations to come. In this regard, those involved in education will find that UNESCO's Strategy for the Protection of Culture and the Promotion of Cultural Pluralism in the Event of Armed Conflict is highly pertinent in efforts to prevent violent extremism.

It is in this work that notions of respect for diversities and sharing common values come into play. This is where the concept of multiculturalism becomes not only relevant but crucial.

These days, we do hear pessimistic thoughts related to multiculturalism expressed in many countries, particularly in Europe. Some believe that multiculturalism has failed; others even call it harmful, and think it should not be allowed to flourish. These are very alarming thoughts and approaches. What are the alternatives to multiculturalism? Do any exist? They do, of course, but what are they?

It is obvious that the alternatives to multiculturalism are xenophobia, discrimination, racism, Islamophobia, and antisemitism, which are extremely dangerous trends. Politicians and scientists are talking about a 'dialogue between civilizations', but in reality we already see early manifestations of clashes between civilizations. Therefore, these issues must be placed,



Above: View of Baku Old City, including the Palace of the Shirvanshahs and Maiden Tower. Often referred to as an open-air museum, the Old City joined the UNESCO list of World Heritage Sites in 2000.



Ambassador Vaqif Sadiqov

Permanent representative of the Republic of Azerbaijan to the United Nations Office and other International Organizations in Geneva

immediately, on the political agendas of the individual countries and of the UN. Positive attitudes must prevail, and we have to develop the habit of speaking openly about difficult issues.

This is becoming important in a globalized world where people with different cultures, histories, religions, and beliefs are now coming closer together. UNESCO's Constitution states that *ignorance of each other's ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the world through which their differences have all too often broken into war.*

Amidst these serious challenges and threats to world peace and security and in the context of a sweeping globalization, it is the duty of intellectuals and opinion leaders to make the right moves to stand up for universal values and to foster dialogue and rapprochement among cultures, civilizations, and religions.

My country, Azerbaijan, is proud of its history and diverse culture, its rich material and cultural monuments, and its heritage of literature, arts, and music. Located on the western shore of the Caspian Sea and bordered by Muslim Iran and Turkey, and Christian Armenia, Georgia, and Russia, this country of 9,800,000 mostly Shia Muslims is noteworthy for its long tradition of accepting its numerous ethnic and religious minorities. One of the oldest mosques in the world is located in Azerbaijan: the Juma Mosque, built in 743, in the town of Şamaxı. We also have one of the oldest churches in the Caucasus: the 12<sup>th</sup>-century Church of Kish, which was the Caucasian Albanian Apostolic church, near the city of Şaki. Not far from Baku is the Ataşqah Zoroastrian temple of fire worshippers, built in the 17<sup>th</sup> century.

The lifestyle of the local people, their aesthetic tastes, and the national image and qualities are strongly reflected in the arts, both traditional and modern. Pieces of Azerbaijani arts created by skillful craftsmen in the ancient Azerbaijani cities of Baku, Ganja, Nakhichevan, Tabriz, Şuşa, Gazakh, Quba, Şaki, and Şamaxı can be found in many museum collections, including the Victoria and Albert in London, the Louvre in Paris, and the Metropolitan in Washington, DC, as well as museums in Vienna, Rome, Istanbul, Berlin, Tehran, and Cairo, and the list continues.

It was in Azerbaijan that the first secular democracy in the Muslim world—the Azerbaijani Democratic Republic—was established in 1918. But throughout its history, it has always been a multi-confessional and multi-ethnic country. Women in Azerbaijan were granted the right to vote as early as in 1918, thus making Azerbaijan the first Muslim country to enfranchise women.

Located at the juncture of two continents, Europe and Asia, Azerbaijan has passed laws and set up conditions that allow people of various ethnic groups and confessions to live together freely, and to preserve their culture, traditions, religion, and language. The state is committed to its strategy of developing and strengthening the traditions of multiculturalism; this is the most important asset for peace, diversity, and harmony in Azerbaijani society, whatever the political systems that dominated the country at different periods of its history. The development of multiculturalism and tolerance

**Throughout its history, Azerbaijan has always been a multi-confessional and multi-ethnic country. Nowadays, the state continues to develop and strengthen the traditions of multiculturalism; this is the most important asset for peace, diversity, and harmony in the Azerbaijani society.**



tolerance and held an interreligious meeting at the country's largest mosque; that meeting included confessional leaders of the Orthodox, Catholic, Muslim, and Jewish communities.

The first Jews settled in Azerbaijan over 2,500 years ago. Currently 6 Jewish religious communities are registered here, and 7 synagogues are functioning in the country. There are three communities of Jews (Mountain Jews, Ashkenazi Jews, and Georgian Jews) in Azerbaijan, in the cities of Baku, Quba, and Sumgait, respectively. In 2000, Sheikh-ul-Islam Allahşükür Paşazade, the Muslim leader of Azerbaijan, donated US \$40,000 to construct the Jewish House in Baku. On 9 March 2003, a new Jewish synagogue, now the largest in the Caucasus, was opened in Baku, and a Jewish school has been operating in Azerbaijan since 2003.

Thanks to the national consensus on multiculturalism, and the public support for it, along with material and financial assistance from local authorities, there are currently dozens of schools, cultural centers, theaters, associations, and societies connected to the many ethnic communities and groups in Azerbaijan. Among these communities are Tatars, Ukrainians, Russians, Georgians, Ingiloyans, Mountain Jews, European Jews (Ashkenazi), and Georgian Jews. Among the cultural centers are Ronai, the Kurdish cultural center; Orain, the Udi cultural center; Polonia, the Polish cultural center; Kapellhaus, the German cultural society; Tugan-Tel, the Tatar culture society and Yashlyg, the Tatar cultural center; as well as cultural centers of the Chechen, Talysh, Tat, Budug, and Tsakhur communities. Among the societies and associations are the humanitarian associations of Jewish women and of Azerbaijani Georgians; two Talysh associations, Mada International and Avesta; Samur, the Lezgin national center; the Vatan and Sona societies of Akhiska Turks; Crimea, the Crimean Tatars' society; the Commonwealth Society; the Slavic Cultural Center of the Russian Community; and the Avar Society.

The Azerbaijani authorities also support dozens of magazines, newspapers, and radio and television programs in the languages of ethnic groups and minorities.

Azerbaijan also contributes to preserving cultural and religious heritages around the world. The Heydar Aliyev Foundation, headed by Mehriban Aliyeva, the First Lady of Azerbaijan, has sponsored many restoration projects, including those at the catacombs of Sts. Marcellino and Pietro in Rome and the Philosophers Room in the Capitoline Museum in Rome; the Strasbourg cathedral in France; ancient masterpieces in the Palace of Versailles and the Louvre Museum in France; and the Trapezitsa Architectural Museum Reserve in Veliko Tarnovo, Bulgaria.

The year 2016 was declared the Year of Multiculturalism in Azerbaijan; this took place against the backdrop of numerous religiously motivated ethnic conflicts in the Middle East. By developing its own brand of soft power, Azerbaijani authorities are promoting a kind of multiculturalism that can be viewed as a model elsewhere, especially in the states and societies of the Middle East plagued by radicalism in recent decades.

at the level of state policy in Azerbaijan, which is a secular state, is based on the country's ancient history of statehood and on developing these traditions at present. Article 48 of the Constitution of Azerbaijan ensures freedom of worship: people may choose to practice any faith, or to not practice any religion, and to express their views on religion.

The 1992 national law, *On Freedom of Faith*, ensures all human beings the right to determine and express their views on religion and to execute this right. According to paragraphs 1–3 of Article 18 of the Constitution, religion acts separately from the government, and all religions are equal before the law; it also prohibits propaganda about religions, attacks on human dignity, and anything contradicting the principles of humanism. Azerbaijan has never had any confrontation or misunderstanding on religious or ethnic grounds; I see this as one of its greatest achievements.

Today, Azerbaijan serves as a model for peaceful coexistence among people of diverse cultures. Historical monuments of all religions—whether mosques, churches, or synagogues—are protected by the state, which also provides funds for their restoration. Currently there are more than 650 registered religious communities in Azerbaijan; 37 of these are not Islamic, including 13 functioning churches.

The Russian church building of Jen Mironosets, built in 1907 by the Azerbaijani oil industrialist Haji Zeynalabdin Tağıyev, was granted to the Russian Orthodox Church in 1991. In May of 2001, while Aleksiy II, the patriarch of All Russia, was on a visit to Azerbaijan, he granted this building the status of a cathedral. In addition, there are three Russian Orthodox churches in Baku, one in Ganja and one in Xaçmaz.

The Catholic community was registered in Azerbaijan in 1999, and Pope John Paul II visited Azerbaijan in May of 2002. After his visit, the government of Azerbaijan developed an agreement with the Holy See, and in 2007, St. Mary's Catholic Church was constructed in Baku, to replace one that had been demolished 70 years ago, during the Soviet period. The new church was inaugurated on 7 March 2008, by the Vatican Secretary of State, Cardinal Tarcisio Bertone. In 2016, Pope Francis visited Azerbaijan. He praised it as a place of religious

*Opposite page:* Any guest to an Azerbaijani home will be offered tea – a sign of genuine hospitality. Samovars are used to boil the water for the çay, which is then served in an *armudu*, a tulip-shaped glass.

My country strongly believes that multiculturalism is the only viable option for societies to develop in the age of globalization, because the opposite—engaging in self-isolation—would be disastrous. Fostering the necessary political and social conditions for acceptance and coexistence gives the country a feeling of security and unity, making it more open to differences and diversity.



With this in mind, the Baku International Multiculturalism Center was established in 2014 to introduce the Azerbaijani model of multiculturalism to the world, and to carry out research on existing multicultural models. The center has also established branches in Bulgaria, Germany, Israel, Italy, Moldova, Portugal, and Russia. One of its mainstream projects is promoting a special university course on Azerbaijani multiculturalism at local and foreign universities. This course has already been incorporated into the teaching programs of several leading universities across Europe, including La Sapienza University in Rome, Charles University in Prague, and Fribourg University in Switzerland, as well as universities in Russia, Georgia, and Indonesia. The center has also initiated the publication of a series of books that will carry the title *Sources of Azerbaijani Multiculturalism*.

Another avenue Azerbaijan is using to promote the ideas of multiculturalism is active cooperation with its partners through multilateral diplomacy.

Azerbaijan is a member of both the Council of Europe (CoE) and the Organization of the Islamic Cooperation (OIC), and plays an active role in both organizations, which together include over 100 countries. In 2008, Azerbaijan initiated the establishment of relations between the CoE and the OIC by inviting the ministers of culture of the OIC countries to Baku, to join the forum of ministers of culture of the CoE Member States. That initiative, called the “Baku process”, has become a platform that enables people worldwide to support intercultural dialogue and peace building, enhancing cross-cultural understanding to build strong societies. In 2009, Baku hosted the conference of the OIC ministers of culture and invited the European ministers of culture to that event. Through these two conferences, Azerbaijan launched a very important initiative.

In 2010 and 2011 respectively, the Government of Azerbaijan initiated the Baku International Humanitarian Forums and World Forums on Intercultural Dialogue, in order to counter the trends of religious, cultural, and social intolerance and to build solid platforms and opportunities for dialogue, intercultural competencies, and cultural literacy. These forums offer new opportunities to integrate academic knowl-

edge with policy-making. Azerbaijan’s key partners in these events are UNESCO; the Islamic Educational, Scientific, and Cultural Organization (ISESCO); the UN Alliance of Civilizations (AoC); and CoE.

Taken together, these two ongoing forums can function as an appropriate vehicle to pull together the humanitarian, cultural, and creative efforts needed to achieve such lofty goals—and their participants have the necessary sense of moral responsibility and cultural commitment. Clearly, the world needs them to make wise decisions and sensible recommendations; then, the innovative ideas they share in the forum sessions can be translated into tangible practices to fulfill these humanitarian objectives, and help counter the dangers looming around the world. The most recent Baku International Humanitarian Forum, held in Baku on 28–29 October, 2016, brought together over 400 representatives from almost 80 countries, including 13 Nobel Prize winners.

The Seventh Global Forum of the UN AoC, held in Baku on 25–27 April, 2016, featured extensive discussions on international humanitarian cooperation, multiculturalism, and other important issues. By using the UN platform, Azerbaijan has once again demonstrated its tradition of multiculturalism, and urged the world community to fully respect principles of tolerance, and intercultural and inter-civilizational dialogue.

In recent years, Azerbaijan has also played host to large sporting events. In June of 2015 Baku hosted the European Games for the first time; this was highly symbolic, as the first time a European event of this kind was organized in a Muslim-majority country. In 2017, the 4<sup>th</sup> Islamic Solidarity Games were held in Baku as well. Thus, one city at the crossroads of the East and West hosted both European and Islamic Games in the course of just two years. This is the brand of present-day Azerbaijan.

My country’s unique location between East and West, with people of various ethnicities and religions living together in mutual respect, has allowed us to adopt a multiculturalism-led agenda as a strategic tool of our foreign policy. Among its other benefits, this policy has, for decades, allowed the country to defend itself from multifaceted manifestations of religious and political extremism, radicalism, and exclusion. Azerbaijan represents a small country’s success story that could be viewed as a model, especially within a regional framework where radicalism has spread rapidly over the last 20 years. Azerbaijan, through its present-day political vision based on its history, has managed to turn the people’s differences and diversity into an asset, adding an extra value to the country and making it safe from triggers of extremism and threats of violence.

My country strongly believes that multiculturalism is the only viable option for societies to develop in the age of globalization, because the opposite—engaging in self-isolation—would be disastrous. Fostering the necessary political and social conditions for acceptance and coexistence gives the country a feeling of security and unity, making it more open to differences and diversity.



PREVENTING  
VIOLENT  
EXTREMISM  
THROUGH  
UNIVERSAL  
VALUES  
IN  
CURRICULUM

by

Simona Popa  
Program Specialist,  
International Bureau  
of Education

*While efforts to acknowledge and celebrate our differences are critical, they remain incomplete if we don't recognize and embrace our common humanity. In 2016, the IBE launched an initiative to prevent violent extremism through the mainstreaming of universal values in curricula.*

The 2030 Agenda for Sustainable Development envisages “a world of universal respect for human rights and human dignity, the rule of law, justice, equality and non-discrimination” (United Nations, 2015, p. 7). It places a strong emphasis on peaceful, just and inclusive societies, as an unprecedented opportunity to set the world on a sustainable course and to ensure a life of dignity for all.

However, while the world is progressively embracing principles of equity, diversity, and tolerance, it remains deeply divided. An alarming number of serious instances of intolerance and discrimination—including acts of aggression, intimidation and coercion, and violence—have recently occurred in many parts of the world.

A growing threat is posed by terrorism and violent extremism. With its increasing intensity and global spread, violent extremism activity threatens the enjoyment of human rights and fundamental freedoms, and violates the universal standards of justice enshrined in the Universal Declaration of Human Rights and other agreements. Its effects can spill over regionally, nationally, and globally, impacting economic performance, creating pressures in the form of displaced populations, both internally and as refugees, and diverting resources toward containing violence and thus away from development. This, in turn, “reduces the sustainability of economic growth, weakens social cohesion and security, encourages inequitable access to and use of global commons, undermines our democracies, and cripples our hopes for sustainable development and peaceful societies” (Mohammed, 2015, p. 1). In the long run, all such activities undermine development.

Identifying and understanding the underlying grievances or causes that lead to violent extremism, and taking all appropriate measures to prevent hatred, intolerance and violent extremism, are complex and challenging processes.

Curriculum can and should contribute positively to reducing intolerance and extremism.

## Education and violent extremism

Addressing these issues requires a unified response and an integrated agenda that looks at the problem across the social, economic, cultural, and environmental dimensions, including access to education, healthcare, and resources.

Central to these efforts is education. Promoting equitable, inclusive and quality education is “the way to disarm the processes that may lead to violent extremism, by undermining prejudice, by fighting ignorance and indifference” (UNESCO Director-General Irina Bokova, at the 18<sup>th</sup> Commonwealth Lecture in London, 25 February 2016). The process, which requires concerted action at all levels, from local to national, and regional to global, involves engaging children, youth, and adults in strengthening the narrative of a single humanity and empowering them as agents of change.

Against this context, education and learning need to be thought of in far less instrumental terms. They also determine a nation’s social fabric, by shaping people’s dispositions, attitudes, and ethics, and thus building (or not) inclusive, tolerant, diverse societies.

All these facts point to the urgent need to return to fundamental questions about the aims and purposes of education and to a more holistic, integrated, and humanistic vision of learning, which conveys values that will help develop more just and inclusive societies. Values, dialogue, participation, empowerment, and peace-building are critical drivers of social inclusion, an imperative of development.

While many people recognize the relationships between education, inclusion, equality, and peace-building, what is less often recognized is the role curriculum can play in preventing intolerance, hatred, prejudice, and extremism—and it is not used to its full potential. Curriculum can and should contribute positively to reducing intolerance and extremism.

Curriculum can promote knowledge about, and understanding of, different cultures. The attitudes and tensions that lead to conflict and violence are often

*Below:*  
School children of various ethnic origins at the Anse Etoile School near De Quincy Village, Glacis, Mahe Island, Seychelles.



deeply rooted in stereotypes and misconceptions. Cognitive science can inform curriculum and subsequently learning, by offering potent means to understand, prevent, and heal societal prejudices and stereotypes. As a case in point, recent brain research shows that societal prejudices seep into the minds of very young children (Meltzoff, 2013). Hence, as Skinner and Meltzoff argue in their article above, it is never too early to prevent and combat bias, prejudice, and stereotypes.

Curriculum can also equip learners of all ages with those values, knowledge, and skills that are based on, and instill respect for, human rights and social justice, and that empower learners to be responsible global citizens. Curriculum can contribute to all the dimensions involved in building equitable, just, and tolerant societies, among them conflict prevention, social transformation, civic engagement, and economic progress. It can address underlying inequities that fuel conflict, and it can empower disenfranchised groups, inform civic education, and shape democratic participation and decision-making.



Above:  
Kids riding their bikes to school,  
Anse La Reunion, La Digue, La Digue  
and Inner Islands, Seychelles.

## The IBE's initiative

In 2016, the IBE launched an initiative to prevent violent extremism through the mainstreaming of universal values in curricula. This initiative notes that the global vocabulary and dialogue on addressing intolerance, violence, and extremism have focused more on diversity than on similarities. While efforts to acknowledge and celebrate our differences are critical, they remain incomplete: we cannot fully appreciate our differences unless we recognize and embrace our common humanity.

The IBE strongly believes that “there is more that holds us together than what separates us” (IBE Director Mmantsetsa Marope, at the conference on *Countering Intolerance and Discrimination through Education: Challenges and Prospects* in Geneva, 16 June 2015). The IBE therefore seeks to use curricula to highlight the universality of values that hold humanity together.

At the heart of this position lies an understanding of the remarkable diversity of our world, coupled with a keen appreciation of the shared humanity that unites us. Our working assumption is that acknowledging and even celebrating the universality of human values is the first step toward living together in unity and harmony.

The IBE's response builds on UNESCO's *raison d'être*: to promote international understanding, cooperation, peace, and respect for human rights and fundamental freedoms. It also builds on the third pillar of learning, underlined in the UNESCO Delors report: “learning to live together” (Delors et al., 1996). Learning to live together begins with a “qualified universalism of human values”, a stance that acknowledges the dominance of shared human values, tempered with the contextual particularity of some values.

The IBE proposes a hybrid approach that is both philosophically based and educationally pragmatic in recognizing both the universality and the particularities of values. This hybrid position may be referred to as ‘qualified universality’.

While acknowledging that a range of different interpretations, tensions, and assumptions confront the

notion of universal values, the IBE maintains that a hybrid approach of qualified universality is possible, based on philosophical and socio-psychological arguments about common values across cultures. This qualified universality embraces cultural plurality, while recognizing that common values are paramount.

Diversity, pluralism, and personal freedom are not incompatible with the recognition of universal values. On the contrary, universal values are actually required if we are to protect diversity, pluralism, and freedom, “treating each human being as an agent and an end” (Nussbaum, 1999, p. 63).

The IBE argues for ongoing, dynamic processes of deliberation on how such qualified universality can take place at multiple levels of education and learning—e.g., from national curriculum to schools, from formal to informal curricula, etc.—as well as in cross-national forums such as those that the IBE and UNESCO, more generally, facilitate.

One way to address these concerns together is to generate a list of universal values that is sufficiently flexible to enable us to do justice to our diversity. As our understanding of qualified universality continues to evolve, it would be unwise to be sidetracked for too long by theoretical debates about the existence of universal values. Rather, we should move forward with deliberative processes that identify common values across cultures, as well as their variations, mindful that we must protect the particularities underpinned by the human rights standards.

Curricula are important avenues for promoting a hybrid approach that accommodates both the universality and the particularity of values. They enable learners to reflect on their own understanding of the universality of some values, while developing their ability to examine related issues, leading them to be more socially conscious of the culture they are personally engaged in.

The IBE's work on universal values is naturally connected to UNESCO's Global Citizenship Education (GCED) initiative, one of UNESCO's strategic areas of

work, a target of the global Education 2030 Agenda, and underlined in the Sustainable Development Goal (SDG) 4.7:

*By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.*

The GCED, which aims to build values, soft skills, and attitudes among learners to promote social transformation and facilitate international cooperation, can serve as a framework for putting universal values into operation, and for directly engaging with many of the related issues, such as social justice, human rights, inclusion, diversity, gender equality, environmental sustainability, etc.

The IBE is leading a complex process of articulating and endorsing the universal values that need to be promoted and taught, to prevent violent extremism.

This process requires concerted action at all levels, from local to national, and regional to global. It involves participating in multicultural and interfaith dialogue, and engaging youth in strengthening the narrative of a single humanity and empowering them as agents of change. Mainstreaming universal values in curricula is the first operational instrument through which education systems can address violent extremism.

The IBE is also planning other activities: design and help implement curriculum materials to train educators and assessors; design specific programs for youth, to increase their capacity to recognize, prevent and counter intolerance and extremism; and educate the public about the role of universal values, as a tool to counter intolerance and extremism.





## A Single Garment of Destiny

*We must either learn to live together as brothers or we are all going to perish together as fools ... It really boils down to this: that all life is interrelated. We are all caught in an inescapable network of mutuality, tied into a single garment of destiny.*

Martin Luther King  
A Christmas Sermon on Peace, 1967

Many factors can polarize us: frantic oversimplification, stereotypes, fear, and terror. Meanwhile, an increasing veneration of difference leaves us rather vulnerable. Knowledge and understanding bring people together. There isn't much space for earnest discussion about a common ground, but the subject of universal values can expand that space. This IBE initiative gives us an occasion to reflect on our commonalities, and to challenge ourselves to restore a sense of agency in building a collective future. We are all connected, in the words of Martin Luther King, “in a single garment of destiny”, and we need to learn to live and work together, to improve the human condition.

## Notes from the Managing Editor



**Simona Popa**  
Managing Editor  
*IBE In Focus*

This latest issue of the *IBE In Focus* transcends the ordinary. In this issue, we usher in a dramatic expansion of our work and our understanding of it, by inviting cutting-edge scholars and leading policy-makers and practitioners to write several articles, and by interviewing prominent public figures whose transformational work inspires the world. We leaped over geographic, as well as intellectual, boundaries, to place our history, our current initiatives, and our aspirations within a broader context. This context gives us a compass to steer by—just as our amazing history does.

IBE-UNESCO is just eight years shy of its 100<sup>th</sup> birthday. Very few UN institutions can claim such longevity and even fewer have as remarkable a past as the IBE. Indeed, the IBE's rich history is an essential part of our identity, one that we continue to cherish and celebrate. But the vitality of the IBE depends on constantly re-inventing and re-imagining our work. Keeping it vital is not possible without initiating new intellectual connections, engaging the creativity and knowledge of exceptional individuals, and learning from successful examples.

Reporting on our work is still essential, as it sheds light on specific parts of our key undertakings. In this issue you have found the whole sweep of our work: mounting bold initiatives, contemplating new projects, nurturing existing ones, and taking pride in those we just completed. Yet, we never trumpet our endeavors, but report on them with the humility that comes of always believing there is more to learn and understand. As such, we regularly open new doors for knowledge, learning, and cooperation. This year, we opened them especially wide.

Once we gathered all the articles, we realized that they naturally belong together. From the interviews with the Grand Duchess of Luxembourg, the Founding Director of Education Fast Forward, and the CEO of Dubai Cares, to the exemplary success stories from Azerbaijan, Malaysia, Seychelles, and Singapore; and from the scholarly contributions on the neuroscience of learning to those on combating and educating against prejudice, they are powerful examples of people and institutions that are similarly, passionately committed to make the world a better place. We are inspired by their work, making this an excellent opportunity to reflect on our highest aspirations. With the strength of our past, the effervescence of the present, and the foresight of the future, we welcome the opportunities they offer, as we re-imagine the 21<sup>st</sup>-century IBE-UNESCO.

### Info

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*We welcome and encourage reader feedback and interaction. Follow In Focus online at: [ibe-infocus.org](http://ibe-infocus.org)*

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All references to the publications cited in these articles are listed in the online version of our magazine: [ibe-infocus.org](http://ibe-infocus.org)

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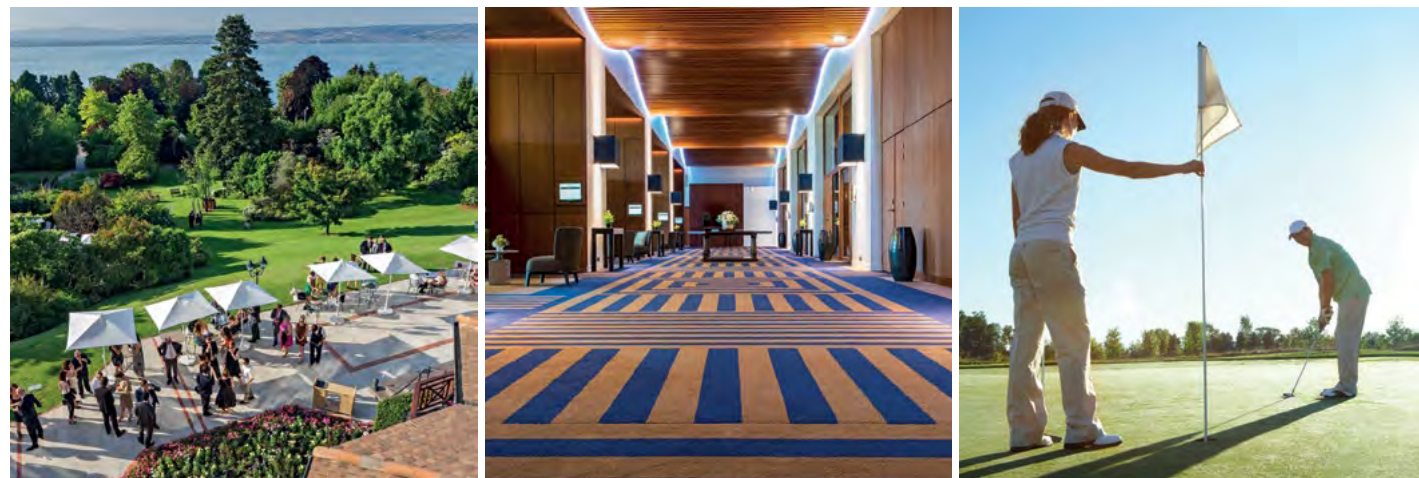
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