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TRENDS/CASES

An international model of world-class education: The International Baccalaureate

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Abstract This article posits that world-class education is international education, as defined by UNESCO, and presents International Baccalaureate (IB) programmes as examples of this phenomenon. It begins with the IB's 1960s origins in international schools, which educated the children of globally mobile parents who worked principally in the UN and its agencies, and in embassies and multinational companies. Its origin led to its perception as elitist, but it has since been democratised in public (state) schools in quite a number of countries, notably in North America; starting in 2012, the IB offers the IB Career-related Certificate (IBCC) programme for students following vocational courses. Then follows an overview of the four education programmes of the IB, in order of creation: Diploma Programme (1970), Middle Years Programme (1994), Primary Years Programme (1997), and the IB Career-related Certificate (2012). Attributes of a world-class education are suggested: the concept of interdependence between nations, the shaping of attitudes, the relevance of curriculum content and teaching methods, and the importance of including an international perspective. The article concludes with a list of competencies for a world-class education based on the IB Learner Profile.

Keywords International Baccalaureate · International education · International mindedness · Intercultural education · Global education · Peace education · World-class education

So the ancient Greeks were right: the world *is* flat. Tom Friedman (2005) has told us so. The world is highly interconnected thanks to such technological advances as the Internet, video-conferencing, and the Blackberry. Friedman's message is that no country, no individual can avoid the implications of this change: "It is this triple convergence—of new players, on a new playing field, developing new processes and habits for horizontal collaboration—which I believe is the most important force in shaping global economies and politics in the early twenty-first century" (pp. 181–182).

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A world-class education is cognizant of globalization and the need for an education whose perspective extends across national frontiers. Many of these programmes will be national curricula with an international perspective. Others will be the same internationally-minded programme taught in schools in many countries. So these programmes are world-class not only in the knowledge, skills, and attitudes they seek to develop, but also in their availability and recognition across the world. A world-class education is an international education.

UNESCO has been advocating the internationalization of state education systems since its statement on international education for peace, human rights, and democracy in 1974. This was reconfirmed at the International Conference of Education, Geneva, in 1994 (UNESCO 1995), and several elements of an international education were again identified:

- values education for peace.
- conflict resolution skills.
- respect for cultural heritage and the environment.
- intercultural understanding (within and between nations).
- global issues and attitudes of solidarity at national and international levels.

UNESCO's (1974) statement asked teachers to tap the creative imagination of children, to develop their skills of critical analysis, and to teach foreign languages and civilizations "as a means of promoting international and intercultural understanding" (Article 17, p. 3). The document also recommended, where appropriate, "an interdisciplinary, problem-oriented content adapted to the complexity of the issues involved in the application of human rights and in international cooperation, and in itself illustrating the ideas of reciprocal influence, mutual support and solidarity" (UNESCO 1974, p. 4).

IB programmes provide an example of a system which might claim to provide world-class education.

The origins of the IB

The IB diploma programme, covering the last two years of secondary education, originated at the International School of Geneva in 1962 for three main reasons. One was pedagogical, one idealistic, and one pragmatic:

1. to provide an education which placed an emphasis on critical thinking skills.
2. to promote intercultural understanding and provide students with an international perspective.
3. to provide a diploma which would be recognised for entry to higher education around the world.

Teachers in the International School of Geneva were confronted with articulate, well-travelled young men and women with a natural curiosity, which led them to question established beliefs and points of view. The teachers were attracted to the school for this reason and practised a teaching methodology which promoted critical inquiry, dialogue in the classroom, and a creative approach to learning. Leach (1969, p. 208), who was in charge of the history department at the school, put it this way: "Students must think everything through [and realize] that they will not be given conventional reassurance for closed opinions, however respectable they may appear at first […] Humour, unexpected withdrawal from advanced positions and genuine humility before more complex issues will win respect" (pp. 208–209). The emerging IB diploma programme espoused this pedagogical approach,

which was also reflected in the student assessment procedures where students earned low grades if they merely reproduced standard facts and opinions, without supporting their arguments and considering alternative methods or views. However, a "conservative" answer well done would always score higher than a "liberal" answer poorly done: the rigour of the argument plays an important role. The IB project attracted reformers of national education systems who could see beyond memorization and encyclopaedic knowledge—the mass educational approach of the day—and despaired at the lack of dialogue, questioning, and real understanding on the part of students. Howard Gardner (1991, 2004) identifies lack of understanding as a major weakness of schooling.

Important ingredients of the IB diploma programme were developing intercultural understanding, learning about global issues, learning at least one other language, and understanding the human condition on a global scale. This knowledge would lead to students forming positive attitudes about others, preserving the environment, and so on. This is the idealistic *raison d'être* of the IB, which finds expression in the mission statement of the International Baccalaureate organization:

- The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.
- To this end, the IB works with schools, governments, and international organizations to develop challenging programmes of international education and rigorous assessment.
- These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right (IB 2002).

Internationally mobile students returning to their home or other countries with foreign diplomas often had difficulty being accepted into universities. This created pressure on schools to deliver national qualifications, which led to a pragmatic need for an international passport to higher education.

The IB has an interesting history, going back the better part of a century. The idea had first been mooted in 1925, when Adolphe Ferrière, a member of the board of the International School of Geneva, wrote to seventeen European leaders in educational reform, seeking their comments on a proposed *maturité internationale*. (In Switzerland the secondary leaving certificate is called the *maturité*). A socialist and educationist, Ferrière was a member of the Rousseau Institute (founded in 1912), which became the International Bureau of Education in 1925, with Piaget as its first director and Ferrière as assistant director (Suchodolski et al. 1979, p. 44). Two decades later, in 1946, the French minister for education, André Philip, wrote of the increasing "necessity for secondary teaching to align itself with international schools", which, he said, "should be able to deliver an international diploma authorised by UNESCO and having equivalent status with the corresponding diplomas of each nation" (Collège Cévénol 1946). Finally, in 1951, the Conference of Internationally-Minded Schools was founded under the aegis of UNESCO; its first, provisional, name was the Conference of Principals of International Schools and Schools Specially Interested in Developing International Understanding. One of its three aims was "to work towards recognition of the equivalence of university entrance diplomas in all countries and the development of international diplomas for university acceptance everywhere" (Conference of Principals 1951). This effort came to fruition in the early 1960s, when the International Schools Association encouraged and supported the development of the IB diploma as an international credential for university entry.

The IB now offers a continuum of three programmes of international education for children from 3 to 19 years of age or more and the IB Career-related Certificate. The programmes share a common philosophy and pedagogical approach. They develop the whole student: intellectually, socially, ethically, aesthetically, physically, and culturally.

Inclusiveness and the IB

A world-class education must be inclusive; to what extent does this apply to IB programmes?

The IB is a non-profit educational foundation established in Geneva in 1968. Its diploma programme is sometimes perceived as a course for a small, elite group of university-bound global nomads in expensive, private international schools. It has even been confused with Swiss finishing schools! The reality is quite different. Since its inception in 1968, growing interest from the public (state) school sector has meant that, today, the IB has changed from being a programme initially intended for international schools to an international programme for all schools.

In May 2012, 57% of the 3,393 IB schools in 141 countries were state schools where students pay no tuition. Of the 119,437 students who presented themselves for IB diploma examinations in May 2012, students from such schools represented 67.5% (80,576 students). While the largest number of public schools is in the United States and Canada, quite a few are also to be found in the Nordic countries, the UK, Spain, the Netherlands, Ecuador, Puerto Rico, and Australia, and sprinkled across Central and Eastern Europe. Many schools provide access to an IB education for less privileged members of society. Examples are the Hermann Gmeiner International College in Ghana and the United World College in Costa Rica. In the latter, half of the students are orphans from SOS villages. Students in both schools earn IB diplomas and attend university. The International Community School, in Dekalb County, Georgia, in the United States, is a public elementary school dedicated to welcoming the children of displaced immigrants.

Table 1 shows the extent of IB outreach in the United States, where the majority of IB schools are public (state) and charge no tuition. Schools where at least 40% of students are from low-income families and thus enrolled in the free and reduced lunch programme are designated Schoolwide Title 1 establishments. Schools with less than 40% of students in the subsidised meal programme are designated Title 1. Schools may choose to offer any one or more of the four IB programmes, so the number of IB schools is lower than the number of programmes operating across the United States.

Table 1 IB programme outreach in the US in July 2010

	IB world schools	Total programmes
All IB schools	1,161	1,304
Public (state) schools	1,059 (91%)	1,181
School-wide Title 1	154	179
Title 1	93	101
Total eligible title 1	247 schools	280 programmes

Another example is Binghamton High School in New York state. A public Schoolwide Title I establishment of 1,800 students, it has offered the IB Diploma Programme since 1996. Sixty-two percent of its students qualify for free or subsidised meals. Dr. Al Penna, the principal, described it to me:

> The IB Diploma Programme has helped to infuse rigor, challenge, critical thinking skills, and much-needed analytical writing skills among our student body […] graduates from our IB Programme always come back to visit BHS and report that they are well prepared for college/university because of the IB.
>
> The IB programme gives students from the poorest neighbourhoods in our city the opportunity to have the same academic experiences as those students who attend the most elite schools in the world. It "levels the playing field" for students who may live in poverty, yet at the same time it also challenges the most gifted students in our schools. It offers hope to many; but more importantly, it shows that our students can compete academically on a global stage.

The IB also responds to special needs. For example, in May 2012, it supplied 20 examination papers in different Braille versions, and 681 papers were provided in enlarged formats or different fonts, or printed on coloured paper to aid students with visual limitations. A further 29 papers were provided in a digital format (PDF or Microsoft Word files) for candidates to use with Specialist Reading software. A particularly severe and meritorious special needs case is that of a young man I will call Malcolm, who attended a state public school in the UK. Malcolm was 18 in 2010 and started his IB diploma course in 2008. He has quadriplegic cerebral palsy and several visual disabilities, and drives an electric wheelchair. He does not speak but communicates by using an alphabet board with someone sitting next to him doing word prediction. He walks every day, using a specialised Danish walker. Despite his disabilities, Malcolm completed his IB diploma in May 2011, over four years, instead of the mandatory two, with a very fine result of 31 points out of a maximum of 45.

The IB also undertakes projects to provide a world-class education in difficult circumstances. For example, since 2003 the IB has been working with the Ministry of Education in Cambodia to support the Kandal Provincial Teacher Training College, as it incorporates modern, interactive teaching methods in elementary school classrooms. The IB's Primary Years Programme (PYP) pedagogy was carefully and respectfully adapted to suit the conditions in the country in discussion with experts from the Ministry of Education. Experienced IB teachers modelled child-friendly practices with limited resources and high class sizes—the reality in Cambodia. The project is on its third contract on an annual budget of some US$60,000 per year of donor funding, including funds from UNESCO. This is not an example of placing an IB programme *per se* into schools; instead, the collaborators are adapting an IB approach to suit local conditions, to enhance the national programme, and to build capacity.

I now provide a brief description of each IB programme. More detailed information is available at www.IB.org.

The diploma programme

This programme began more than 40 years ago. As of May 2012, 2,349 schools offer the Diploma Programme. Figure 1 offers a profile of it. Students must study six subjects,

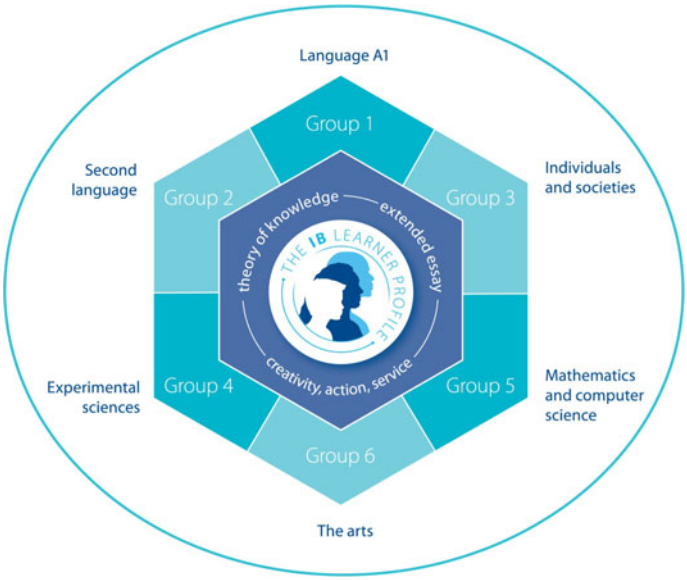

Fig. 1 Diploma programme

choosing one from each of the following groups: a literary appreciation course at native-speaker level; a second language; one of the humanities (from the group called "individuals and societies"); experimental science, maths, or computer science; the arts; and finally a second subject from one of the preceding groups. They must study three of these subjects at higher level (a minimum of 240 hours of tuition over two years) and three at standard level (a minimum of 150 hours over two years). In addition, all students must write an extended essay of 4,000 words to develop research skills, and take a 100-hour theory of knowledge course and a 150-hour course in creativity, action, and service, called CAS. These last three components deserve special mention.

The compulsory extended essay provides students with the opportunity to explore a topic of interest in one of the subjects they are studying for the diploma. It lets them develop the independent research and writing skills so necessary for success at university. A teacher supervises the research and the paper is externally examined; slightly more than half the marks are based on the research design. Below I list several recent essay topics, with the course indicated in parentheses.

- The effects of acid rain on the environment, with a focus on plant life (biology).
- Existing solutions to Latin America's debt crisis in relation to Mexico (economics).
- The contribution of international organizations to the economic development of Geneva (economics).
- Why the Australian and Singapore stock exchanges are more volatile than the major international stock markets (economics).
- Springtime is silent: The poetry of the Vietnam War (English literature).
- Lillie A. James: Opportunity and equal rights through education (history).
- The mathematics of nature: The relationship between fractals, chaos, and iteration (maths).
- Euthanasia: The morality of killing and letting die (philosophy).

- Feminist issues and the Arab woman (social anthropology).
- The comparative prevalence of albinism in the African and African American racial groups and in Caucasian and Asian individuals (biology).

The course in theory of knowledge has no exact equivalent in any national system. It is interdisciplinary and epistemological, and challenges students to question the bases of knowledge, to be aware of subjective and ideological biases, to think critically, and to appreciate cultural differences. It is assessed through a major essay that is externally examined, and an oral presentation.

The curriculum guide (IB 2008a) includes these topic questions from the theory of knowledge course:

- Do knowledge claims transcend different communities or cultures? (p. 12)
- Do people with different cultural or linguistic backgrounds live, in some sense, in different worlds? (p. 14)
- To what extent does the scientific method vary in different cultures and eras? (p. 24)
- What beliefs or knowledge, if any, are independent of culture? (p. 37)

The creativity, action, and service (CAS) component is the only part of the diploma which is not graded, but students must complete it satisfactorily to receive the diploma. CAS encourages students to participate regularly in artistic pursuits, physical exertion, and community service. In this way they share their energies and talents while developing awareness and concern, and the capacity to work cooperatively with others. The course originated with Kurt Hahn, who founded the Outward Bound movement. The IB goal of educating the whole person and fostering a more compassionate citizenry comes alive in an immediate way when students reach beyond themselves and their books.

CAS also leads students to consider the human condition. It is experiential learning followed by reflection. Many CAS projects in schools around the world also promote intercultural understanding and attention to global issues. Students work with refugee families to reinforce the language of the host country and to provide moral support. IB schools in the developing world (or students visiting from abroad) assist local schools and villages with books and materials; they teach lessons, and invite local students and teachers into the IB school to engage with the students who may be expatriates themselves. In a number of schools in both developed and developing countries, IB students provide weekly survival (literacy and numeracy) and recreational programmes for street children. Students in an IB school in Uganda, in collaboration with UNICEF, address the global issue of AIDS through local action. They give weekly moral support to children with HIV-positive parents, building up memory banks of the family history and values shared by the parents and tape-recorded by the IB students. These banks will be available to the children after the parents have died.

Assessment is based on reflection; students consider how they felt, what they perceived, what they thought about the activity, what value it had, what they learned from it, and how this learning might apply more widely, for example, in a change of perspective (IB 2008b, p. 11).

The content of the IB diploma programme has a deliberately international perspective. Examples are the components on world literature in the first language course, or on world interdependence in economics, on different cultural accounts of the same events in history courses, and on the cultural origins of mathematics and science. The programme offers literature courses in more than 70 languages at native-speaker level, and all subjects can be taken in English, French, or Spanish.

The skill of critical analysis, the backbone of the theory of knowledge course, underlies the pedagogical approach of the IB diploma programme. Its values support a sustainable, peaceful future and respect for human dignity. For example, ethical use of scientific and technological advances is part of the syllabus for experimental sciences. External examinations for the IB diploma, at the conclusion of the two years of study, take place in May (for the northern hemisphere) and November (for the southern hemisphere). Internal assessment of course work, which is externally moderated, counts for between 25% and 30% in most subjects. The IB diploma is accepted for entry into and/or credit by the best universities around the world.

Middle years programme (MYP)

This is a five-year course for students aged 11 to 16, which has been available since 1994. Students study eight subjects, as shown at the points of the octagon in Fig. 2.

The concentric circles in Fig. 2 contain five areas of interaction which traverse each of the subject domains. These are not additional subjects, but represent five perspectives that are addressed in the subject disciplines: approaches to learning, health and social education, community service, environment, and human ingenuity ("man the maker"). Holistic learning, intercultural awareness, and good communication and critical thinking skills underpin the whole programme. In May 2012 this transdisciplinary approach was being practised in 945 schools in 78 countries. The entire programme can be taught in English, as well as in Chinese, French, or Spanish. Other languages are accepted if the IB can provide quality control in that language; thus, there are a small number of schools teaching a bilingual MYP, with subjects in English and Turkish or Russian or Arabic. The content is not as strictly prescribed as in the diploma programme, although sample syllabi are

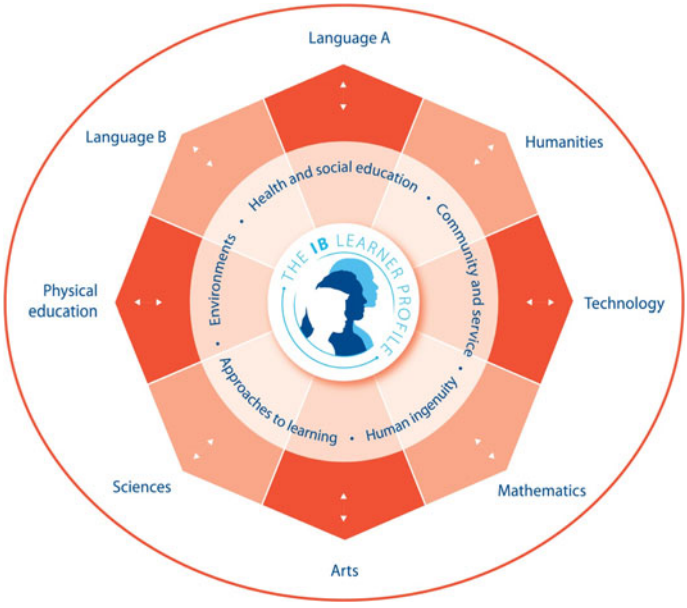

Fig. 2 Middle years programme

published; local educators have much more flexibility to accommodate local education requirements, provided that an international perspective is also present. On the other hand, the skills and attitudes to be developed are clearly indicated, along with a teaching approach which encourages curiosity, creativity, analysis, and critical thinking. This can be illustrated through the concept of *human ingenuity*, which is not typically found in national curricula.

Human ingenuity explores the human instinct to create, initiate, develop, or transform our lives and our world. It is at the heart of enquiry and active learning. Throughout the programme, students engage in several kinds of activities. They

- discuss why humans create or change products, examine developments, and predict possible future orientations.
- are involved as innovators and developers in thinking creatively.
- celebrate human endeavour, and critically evaluate the impact of inventions on society and the world. (IB 2008c, pp. 32–33)

Many facets of human activity are explored through this area of interaction, including systems, communications, technology, thought, art, culture, and science.

Assessment practices must also reflect the pedagogy and international perspective. For example, all students complete a personal project in their fifth year of the programme; it involves planning, research techniques, and personal reflection. If the project is in the form of an invention, artistic work, or organised activity, the student produces a log book which describes the inspiration, research, and influences guiding the work, and analyses the process of completion and the significance of the findings. At least two areas of interaction must be explicitly developed within the analysis. No external examinations are conducted at this level, but the school can access an external process for moderating standards if it wishes to award an MYP certificate to its students who complete the course.

The MYP is a methodological framework which lends itself to educational reform because it is not prescriptive about content.

Primary years programme (PYP)

This programme has been available to schools since 1997 and is for students from 3 to 11 or 12 years of age. As of May of 2012, 909 schools in 87 countries were offering the PYP. The programme is available in English, French, and Spanish.

Structured inquiry is the central vehicle for learning. The PYP seeks to develop skills in communication, critical thinking, respect and understanding of other cultures, taking calculated risks, and responsible citizenship. These form part of the concepts, action, skills, and attitudes which lead us from the centre of the shape in Fig. 3, via the subject areas, out towards the six themes which are to be found at each point of the hexagon:

- who we are.
- where we are in place and time.
- how we express ourselves.
- how the world works.
- how we organize ourselves.
- sharing the planet.

The themes are treated in a holistic way through units of inquiry which draw on more than one of the subject areas and pose eight questions to guide the work.

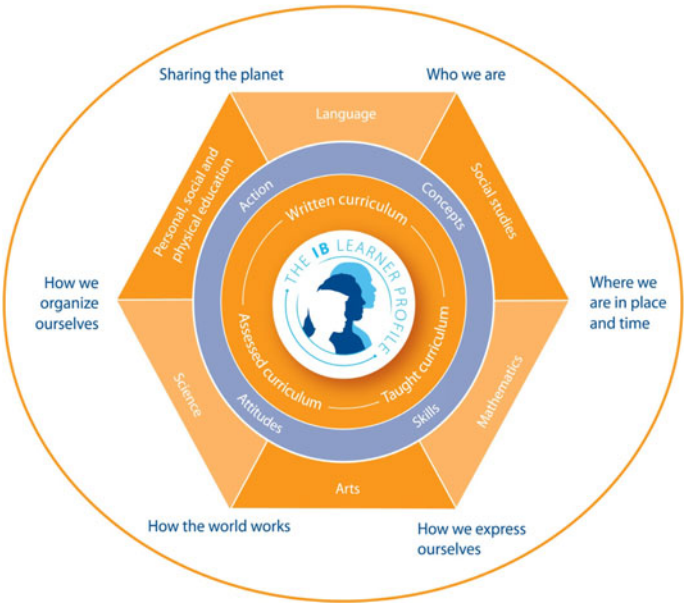

Fig. 3 Primary years programme

- Form: What does it look like?
- Function: How does it work?
- Causation: Why is it the way it is?
- Change: How does it change over time?
- Connection: How is it connected to other things?
- Perspective: What are the points of view?
- Responsibility: What is our responsibility?
- Reflection: How do we know?

Assessment includes the PYP Exhibition, which is presented in the final year. It requires students to analyse a real issue, preferably a global one, and propose solutions. The exhibition must include written work, oral presentations, the use of technology, and performances in one or more of the arts. It is often a collaborative effort by groups of students or the whole class, but it can also be an individual effort.

There is no external assessment or moderation for the PYP, but a detailed handbook is available that describes student assessment techniques and teacher training workshops.

Like the MYP, the PYP provides a pedagogical structure and educational philosophy within which specific content can be offered. Scope and sequence documents are available for all subjects but they are not prescriptive; this allows local educators to include mandatory national material.

IB career-related certificate

This programme is offered officially to all schools for the first time in 2012. The IBCC encourages students engaging in career-related education to benefit from elements of an IB

Diploma Programme (DP) education. They select two or more DP courses in addition to a unique IBCC core, which consists of an Approaches to Learning (ATL) course, a reflective project, language development, and community service. This value-added programme has been successfully piloted in a small number of institutions. One example is a police academy in Montreal, where the students participate in community service, learn to consider multiple perspectives, and appreciate the cultural diversity of their country, so that they can better undertake their work. The IBCC provides an international perspective for national vocational/career courses.

Attributes of a world-class education

I began this article with the list of attributes for a world-class education that UNESCO identified in 1974. We find support for those markers of an international education from many educators and others who have written before and after that first UNESCO statement.

The first known definition of international education was devised by a group of educators from different countries meeting in 1950, at a course for teachers interested in international education at the International School of Geneva. By the end of their four weeks together, the fifty school heads and teachers from 18 countries (including Australia, Pakistan, Hong Kong, and the United States) had agreed on the following definition of international education:

> It should give the child an understanding of his past as a common heritage to which all men irrespective of nation, race, or creed have contributed and which all men should share; it should give him an understanding of his present world as a world in which peoples are interdependent and in which cooperation is a necessity.
>
> In such an education emphasis should be laid in a basic attitude of respect for all human beings as persons, understanding of those things which unite us and an appreciation of the positive values of those things which may seem to divide us, with the objective of thinking free from fear or prejudice. (Course for Teachers Interested in International Education 1950, Section I)

This text embodies the hallmarks of a world-class education.

The third industrial revolution in the West began in the 1990s (Thurow 2003, p. 30). It is not about steam engines or electrification or systematic science; it is a revolution in biotechnology, telecommunications, micro-electronics, computers, and robotics, which has led us to a knowledge-based economy. The richest are now those who own knowledge, not those who own land or manufacturing plants. Education for the future is providing the skills to be productive in the knowledge society.

Juan Carlos Tedesco (1998), a former director of UNESCO's International Bureau of Education, speaks of future needs as follows:

> Technological and organizational changes at the work place and the strengthening of political democracy call for civic behaviour based on the development of certain abilities which traditional education systems do not normally cultivate: mastery of the codes in which information circulates, ability to process information, to solve problems, to work in a team, to express claims. (p. 82)

Mary Joy Pigozzi (2003), a former director of UNESCO's division for the promotion of quality education, in Paris, focuses on the competencies students need, including "knowledge building and the skilful application of all forms of knowledge by unique

individuals that function both independently and in relation to others" (p. 7). She goes on to discuss the dynamic nature of culture and languages, the value of the individual in relation to the larger context, and the importance of living in a way that promotes equality in the present and fosters a sustainable future. She stresses the importance of training teachers effectively, using child-centred approaches, and of developing life-long learning skills in a world which is becoming increasingly interdependent.

In the rest of this section I address four areas that I consider essential to world-class education: the nature of interdependence, the shaping of attitudes, the relevance of curriculum content and teaching methods, and the importance of including an international perspective.

Interdependence

Supranational interdependency is a key concept of a world-class education. "Processes of globalizations and increased interdependence mean that no one, wherever they live in the world, can remain completely isolated within a single nation" (Osler and Starkey 2003, pp. 245–246). Some stunning examples of this phenomenon reach right into villages in the developing world, as J. F. Rischard (2002, p. 29), former World Bank vice-president for Europe, notes. Farmers in the Côte d'Ivoire use village cell phones to check cocoa prices directly on the Chicago commodities exchange. Via the Internet, a farmer in Ethiopia sells goats to Ethiopian taxi drivers in New York, who wish to give holiday presents to their families back at home. Some non-governmental organizations help village women in Latin America and Asia to post their handicraft products directly into a web catalogue.

Interdependence entails reciprocal influences and collaboration in many spheres. Not only does it help to have many different minds reflect on solutions to problems; such collaboration often leads to economies of scale, improved communication links, and heightened understanding across borders. The Asian Highway Plan is another economic example: it has created a network of highways from East Asia across the Eurasian continent from Tokyo to Istanbul. In a project that extends over a total of 140,000 km, the 31 participating countries upgrade existing roads or construct new ones with signs to conform to international standards (Japan to join Asian highway plan 2004, p. 32).

Interdependence implies solutions through teamwork; working alone, people cannot address problems which are caused by multiple impacts. All the major players need to discuss solutions together.

Shaping attitudes

As people work together, their skills and knowledge interact and support each other to shape attitudes of respect for cultural diversity, commitment to peace and justice, compassion, responsible citizenship (family, local, national, international), commitment to lifelong learning, respect for others, and respect for the sustainable development of natural and human resources. Above all, a world-class education should enable students to develop a personal value system to guide their own lives and respect the dignity of others.

Such an education requires a corresponding teaching methodology to facilitate the acquisition of knowledge, skills, and attitudes. Educators must move away from the teacher-directed, encyclopaedic, rote-learning approach to a child-centred pedagogy, which promotes dialogue, critical questioning, lateral thinking, interdisciplinary awareness, and interdependent (teamwork-oriented) and independent learning. The teacher should provide

the "tools for seeking and processing knowledge, rather than […] the actual knowledge itself" (Maclean 2001, p. 42).

The role of community service activities in shaping attitudes should not be underestimated. Working together on rewarding projects, out of the usual routine, breaks down class and cultural barriers. "Formal education must provide enough opportunity in its programmes to introduce the young to co-operative undertakings through participation in sport or in cultural activities and also through participation in social activities such as neighbourhood renovation, helping the underprivileged, humanitarian work, inter-generational assistance, etc." (Delors 1996, pp. 93–94).

Many children begin their schooling without sufficient language skills or without a supportive home environment. Education systems are providing assistance with language and with social support groups for parents, but much remains to be done. For too many children the only appropriate role models they encounter to develop their values are the teachers at school. So, while the eradication of poverty will greatly assist education, the problem is not simply economic. As Hughes (1998, p. 56) has pointed out, many young people fail to find meaning or a framework of values to guide their lives. A world-class education must concentrate first on building up a sense of security, then self-esteem and purpose in life, so that children can reach Maslow's (1943) stage of self-actualization, and learn to respect each other and the world we live in.

Relevance

A curriculum needs to have coherence and articulation across the stages of learning—it needs to be "joined up". It should not appear like a drip feed of discrete subjects throughout a student's education in which the relevance of each subject to the whole is lost. As far as possible, it should be a seamless development within an overarching framework. The "cement" which serves this purpose in IB programmes is its mission statement and its IB Learner Profile and expression of the competencies which stem from the mission statement. I describe the IB Learner Profile later on.

The IB mission statement previously cited guides the continual development and revision of IB programmes, and makes them identifiable at all stages of learning. Potential students and their parents can also judge whether its programmes will be relevant to the needs of an increasingly interdependent world.

Another former director of the IBE, Cecilia Braslavsky (2001, p. 4) points out that many national systems are still based on a 12th-century model of acquiring knowledge by rote learning, and on rigid, overloaded, timetables, where all students move in lock step. Atal (2001) names four elements of a good education:

- It neither uproots people nor insulates them from change.
- It emphasises the process of learning rather than collecting knowledge itself.
- It is generic, not overly specific (which can shelter obsolescence).
- It trains the mind in a holistic, interdisciplinary framework. (p. 16)

Most educators would not quarrel with Atal's statement. While the importance of knowledge, which leads to a *culture générale*—still a valued acquisition in French education—should not be denied, schools can no longer, if they ever could, impart a body of concepts, details, and facts, and leave it at that. Knowledge is now everywhere; it is literally in the air. Students need skills which will enable them to process this knowledge: to know what they need, where to find it most readily and reliably, how to judge its validity, what to discard, and what to spend time reading or viewing. They must also learn

how to synthesize, analyze, and prioritize knowledge, how to identify connections with other knowledge and other disciplines, how to not get lost in the detail but to see the holistic picture, and how to use knowledge most effectively, avoiding closure without considering all the options. And they need all these skills not just at school but for lifelong learning.

In this regard, Lewin and Caillods (2001) identify where the emphasis in education should be:

> With its greater focus on formal reasoning, abstract problem solving skills and critical thinking as well as its occupationally relevant content, secondary education promotes the development of a skilled and knowledgeable citizenry with access not only to the national but also to the global economy. (p. 62)

Even where the reality of the classroom instruction is entirely teacher-centred, emphasises memorization, and discourages dialogue and questioning, the official, printed national curriculum may aim at an admirable acquisition of knowledge, skills, and values, which is almost impossible for students to achieve under conditions like the classes of up to 90 students with one teacher in the developing world. This leads us to an important consideration. Unrealistic expectations and irrelevant knowledge and skills will not promote the attitudes that students need to "live out" the principles of education that Delors (1996) described. Despite the consensus on student needs for the future, the educational starting point is not the same in all countries or in all parts of the same country, and it is this educational starting point which will determine what is relevant and realistic in particular situations.

Maslow's (1943) hierarchy of needs provides an appropriate indicator of what is possible and desirable in terms of attitude formation in a world-class education. He postulates that humans have a number of wants, starting with basic physiological needs like food and water. When these are satisfied, humans then seek the next level of safety and security needs. Those might include a job and regular income, savings, insurance, and a home in a safe neighbourhood. People continue to move up the pyramid through the needs for belonging and esteem, to arrive at the pinnacle: self-actualization. Maslow defined this term by describing the type of people who were "self-actualisers": they prize justice and equity, environmental preservation, democratic values, responsible citizenship, creativity, respect for others, truth, and goodness. These are the attitudes that educators seek for students today. It is clear that children living in abject poverty and poor health have not attained the first level of basic physiological needs and therefore cannot begin to aspire to further levels of the hierarchy. Any educational plan must find ways to provide for students' fundamental survival needs before they can be expected to feel secure enough to develop higher-order skills and attitudes. This is why the eradication of poverty is a necessary but not sufficient condition for a world-class education. It is only when the lower-order needs have been satisfied that the knowledge, skills, and attitudes for quality education described above start to become realistic and relevant.

The Delors (1996) report identifies four pillars of learning, which should underpin curriculum development. Many national education systems have embraced this educational vision: learning to know, learning to do, learning to live together, and learning to be. The four "learnings" operate at the individual, local, national, and international levels. Schools have to translate the vision into practice. IB programmes are one example of how these pillars can be translated into relevant knowledge, skills, and attitudes operating across the whole school age range in many different cultural contexts and in different languages.

An international perspective

National systems of education are increasingly turning toward including knowledge, skills, and attitudes which develop an international (and intercultural) perspective. World events between nations, between enemy groups (often ethnic) within nations, and between terrorist groups and their targets demonstrate how easy it is for xenophobic attitudes to arise. Furthermore, it requires little persuasion to convert people to a cause if they are poor, starving, and unschooled. A world-class education has a major role to play in supporting the concept of living together harmoniously at both the national and international levels.

Mutually supportive co-existence at the local, national, and international levels has become a priority in education to combat problems of aggression but also of survival.

A fundamental plank in an international perspective is the development of intercultural understanding through a series of increasingly aware stages. Students start with limited or naïve knowledge, and then move on to more engagement, followed by emerging cultural literacy, and finally reach transcultural competence. Intercultural understanding applies within nations as well as across national boundaries.

On a pragmatic level, a world-class education programme cannot close its eyes to the transnational nature of many current phenomena: information technology, commerce, transport, telecommunications, protecting intellectual property, labour laws, health regulations, agriculture, scientific advances, and so on. Rischard (2002, p. 30) argues that two major forces are shaping the future and changing the world: the demographic explosion and a new world economy. Both have repercussions across national boundaries. A surge in one place will affect other places as the laws of equilibrium bring about adjustments. The new world economy moves with velocity around the globe; it is highly knowledge-intensive and very competitive. No education system can ignore this trend and the skills that it implies for the future, as I discuss below.

In the next section I describe which knowledge, skills, and attitudes should be developed. I assume that the term "competencies" includes knowledge, skills, and attitudes.

Which competencies for a world-class education?

Students should gain knowledge about a range of traditional disciplines which fall within the arts, the sciences (including information technology), and the humanities. A world-class education, as espoused by the IB and UNESCO, also mandates knowledge about global issues, languages, the existence of a range of perspectives, and the positive mutual effects of interdependence between nations and the people of the same nation.

What are the implications in terms of the skills students need? Rischard's (2002, p. 30) analysis of the four major features of the new world economy provides some answers. First, he says, people will need to be nimble and agile to keep up with its speed. Second, the new world economy flows easily across national boundaries, so people must be good at international networking and collaboration. Third, as we have already seen, we are in the midst of the third industrial revolution, where the economy is knowledge-based; those who are not life-long learners will fall behind. Eric Hoffer, quoted by Bennis (1992, p. 189), put it nicely: "It is the learners who inherit the future. The learned find themselves equipped to live in a world that no longer exists". Finally, the new world economy is hyper-competitive, so people have to be 100% reliable and efficient or their business will rapidly shift elsewhere—consumers have the whole world to choose from.

In 2006, after two years of consultation with IB schools across the world, the IB Learner Profile was established. It is a set of competencies for educating the whole person as a lifelong learner. Schools inculcate the learner profile into their communities. This is not just for students, but for teachers, parents, and everyone else. One school, for example, had small refrigerator magnets made, each listing the 10 competencies. Students took them home and attached them to their refrigerators. The students encouraged their families to reflect on a different competency each week and how much it applied to each of them. As a key cross-programme component, the learner profile is central to the definition of what it means to be internationally minded. The curriculum documents for each programme indicate the level to which learner profile characteristics should be developed at each stage of education.

The aim of IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:

Inquirers	They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives.
Knowledgeable	They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines.
Thinkers	They exercise initiative in applying thinking skills critically and creatively, to recognize and approach complex problems, and make reasoned, ethical decisions.
Communicators	They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others.
Principled	They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them.
Open-minded	They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience.
Caring	They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.
Risk-takers	They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs.
Balanced	They understand the importance of intellectual, physical and emotional balance, to achieve personal well-being for themselves and others.
Reflective	They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development. (IB 2008d, p. 5)

These competencies permeate all IB programmes; they are integrated into the subjects and all learning areas, including the cross-disciplinary MYP areas of interaction.

The first draft, in 2010, of the new Australian National Curriculum—an attempt to provide a common school-leaving qualification across the states and territories of

Australia—has been promoted as a "world-class education". Interestingly, it identifies ten "capabilities" for all students: thinking skills, creativity, teamwork, self-management, intercultural understandings, ethical and social competence, ICT skills, literacy, and numeracy (Reid 2010, p. 31). It shares competencies with the IB Learner Profile. Its developers are defining the "content" of these capabilities and how they will be sequenced and articulated across the stages of learning. Will they be assessed separately? Are there achievement standards for them? Are they absorbed into the content of learning areas or treated separately?

In the IB, competencies have been carefully developed over time, and with the input of IB schools around the world. The assessment is criterion-based with specific criteria and their descriptors to indicate levels of achievement. It rewards critical thinking and problem-solving skills, promotes international-mindedness, includes non-academic aspects like community service in the development of the whole person, and rewards team effort and collaborative skills. A variety of assessment methods are used, such as observation, tests and quizzes, reflection, debates, open-ended questioning, hands-on experimentation, performance, analysis, process journals, problem solving, portfolio assessment, and investigations.

At the level of the final years of schooling, the IB diploma provides a passport to university entrance that is recognized around the world. About 75% of each student's final grade is based on external examinations covering the last two years of work, and the remainder of the grade is internally assessed by the teacher, using criteria and descriptors of level of attainment. The internally assessed components are all moderated by external examiners, taking samples of work from every school in every subject. External examination papers are graded by about 5,000 examiners all over the world, coordinated by a chief examiner (usually a university professor) and a series of deputy chief examiners, depending on the number of candidates per subject or area.

This provides a worldwide standard since all decisions about final grades in all subjects are taken by one committee for each subject. The results for a student in a school in Tanzania are calibrated in the same way as those for a student at the United Nations International School in New York City. It is the IB organization itself which provides the guarantee that its diploma results are reliable, wherever in the world the student is located. Most universities understand this process and therefore treat IB grades with respect. The IB diploma is an international benchmark.

Conclusions

In this article I have assumed that a world-class education model is one anchored in a UNESCO description of international education, of which IB programmes are a prominent example in both state and independent schools around the world. I explained the origins of the IB and then tried to demystify the elitist image of IB programmes, which still prevails in some quarters. I pointed out four key attributes of a world-class education as evidenced in the literature: interdependence, shaping attitudes, an international perspective, and relevance.

I then showed how the knowledge, skills and attitudes to be developed for international-mindedness—which I see as the hallmark of a world-class education—are identified in the IB Learner Profile. A world-class education must prepare students to participate in a global society, where interdependence is a key concept. I described the IB's student assessment process, which is criterion-based. I believe this type of competency-based assessment

should be a feature of a world-class education, culminating in an international benchmark at the end of secondary school. For me, "world-class" implies international recognition of an educational process and the measurement of its outcomes expressed in meaningful certification. Recognition can be gauged by the extent to which a qualification is accepted around the world by reputable higher education institutions and governments. Being accepted implies that the measurement is reliable, consistent over time (not prone to grade inflation), and not affected by norm-referenced changes in absolute standards, and that it is assessing competencies that respond to the needs of young people to be productive in the world of the future, which will increasingly require skills related to working across frontiers and learning to live together.

IB programmes promote the education of the whole person, emphasizing intellectual, personal, emotional, and social growth through all domains of knowledge. By focusing on the dynamic combination of knowledge, skills, attitudes, independent critical and creative thought, and international mindedness, the IB espouses the principle of educating for a life of active, responsible citizenship, both local and global. Underlying the three programmes is the concept of education as a lifelong process—a fundamental plank of a world-class education.

Allow me to make one last, important point. I am not suggesting that an IB education is the only means to a world-class education; it is one example amongst a number of worthy programmes which exist, and it is an example which has attracted an increasing amount of attention over the years and continues to do so.

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