

THE PONTIFICAL
ACADEMY OF
SCIENCES

Extra Series 28

THE PONTIFICAL
ACADEMY OF
SOCIAL SCIENCES

Extra Series 7

Globalization and Education



VATICAN CITY
2006

*Joint Working Group
16-17 November 2005*

GLOBALIZATION AND EDUCATION

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THE PONTIFICAL ACADEMY OF SCIENCES

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GLOBALIZATION AND EDUCATION

the
PROCEEDINGS
of a

*Joint Working Group
16-17 November 2005
Casina Pio IV*



VATICAN CITY 2006

The opinions expressed with absolute freedom during the presentation of the papers of this meeting, although published by the Academies, represent only the points of view of the participants and not those of the Academies.

Editors of the Proceedings:

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Edmond Malinvaud

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THE PONTIFICAL ACADEMY OF SCIENCES
THE PONTIFICAL ACADEMY OF SOCIAL SCIENCES
VATICAN CITY



Pope Benedict XVI



The Pontifical Academy of Sciences, Casina Pio IV



Some Participants at the Joint Working Group, 16 November 2005



SECRETARIAT OF STATE

No. 17.731

From the Vatican, 16 November 2005

Your Excellency,

His Holiness Pope Benedict XVI was pleased to learn that the Pontifical Academy of Sciences would be meeting on 16-17 November 2005 to discuss the theme of Globalization and Education, and he sends warm greetings to all those participating in this important gathering.

A constant and concrete reflection on the mission of education in modern culture is one that is marked by a healthy exchange of ideas. Our shared historical experience in this field finds a common source in the natural desire to know truth, goodness and beauty. It is this longing which moves and nurtures each man and every culture. As Aristotle observed: 'All men naturally desire knowledge'. Indeed, the capacity to be educated is a characteristic which sets men and women apart from other creatures. Like all human endeavours, education first and foremost is centred on man: it is man who is educated, it is man who educates and, accordingly, it is man who is the subject of education.

His Holiness prays that this conference will make a major contribution in discerning ways to improve the training of present and future generations by helping others to realize that in our today's world there is an urgent need to provide a good education to all regardless of religious conviction, ethnic background or economic status. He earnestly hopes that this meeting will help all those involved in the task of human formation to be mindful that it is the human person, open to God, who is at the centre, the beginning, and the end of the educational process. Upon all those taking part in this meeting he invokes God's blessings of wisdom and peace.

With fraternal best wishes, I am

Yours sincerely in Christ,

Secretary of State

The Most Reverend Marcelo Sánchez Sorondo
Chancellor
Pontifical Academy of Sciences
Casina Pio IV
Roma

Message of His Holiness Benedict XVI

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PREFACE

The Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences are jointly sponsoring a workshop on 'Globalization and Education' which will take place November 16-17, 2005. The focus of the workshop will be to find an educational project for an increasingly globalized world, based on our current bioanthropologic knowledge of the human being within the context of the diversity and interdependence of cultures, the interculturality and universality of ethical values, the role of communication technologies and the new migration patterns.

The goal of education is to prepare young people to live well with others, knowledge being considered essential for this purpose. In every community, education has always been deeply rooted in culture, tradition and in the 'project on man' carried out by this group. From these roots it will derive its detailed and complex organization.

The issue of education implies an answer to the question: what can we do to improve the life of the present and future generations? Today, after globalization, we are aware that many aspects must change to improve the well being of all: climate, health, the economy, the family, social environment, national and international institutions and the democratisation of the mass media.

A globalized world and its driving forces are posing new challenges to education for families, schools, universities, lifelong training. This first Workshop shall focus on school education, which should transmit knowledge, enhance justice, prepare the future and preserve the diversity of cultures.

Firstly, globalization will have to be defined in its most relevant aspects. Secondly, its impact on education may be discussed along several broad lines: respect and tolerance for others, based on knowledge; understanding and preservation of cultural diversity, including languages; the economics

of education, especially in the developing world; the role of sciences and of the social sciences as a knowledge of universal value; the place of religions; the new tools for communication; the understanding and managing of the planet; the mixing of populations through immigration.

The two-day Workshop will be organized with keynote speeches, followed by presentations and a general discussion. To better focus the Workshop, the sixteen speeches are organized along these six axes:

1. New approaches to education in the globalized world;
2. The role of communication and information technologies;
3. The effects of globalization on education;
4. Education of immigrants and their children;
5. Education and cultural diversity;
6. Anthropological bases for education and research.

The goal of the Workshop is to launch a first discussion on this vast programme and reach a statement which could help inspire and derive global models for education contents in the future.

Marcelo Sánchez Sorondo
Edmond Malinvaud
Pierre Léna

PROGRAMME

WEDNESDAY, 16 NOVEMBER

9:00 *Word of Welcome*
Prof. EDMOND MALINVAUD
and Prof. PIERRE J. LÉNA, Coordinators of the meeting

NEW APPROACHES TO EDUCATION IN THE GLOBALIZED WORLD

9:30 Chairperson: Prof. PIERRE J. LÉNA
Speaker: Prof. HOWARD E. GARDNER
The Synthesizing of Knowledge: An Imperative in a Global Society
Discussion

10:20 Coffee Break

10:50 Speaker: Prof. NICHOLAS NEGROPONTE
The \$100 Laptop
Discussion

11:40 Speaker: Prof. M. GOVIND KUMAR MENON
Globalization and Education: An Overview
Discussion

12:30 General Discussion chaired by Prof. YVES QUÉRÉ

13:00 Lunch at the Casina Pio IV

THE ROLE OF COMMUNICATION AND INFORMATION TECHNOLOGIES

14:30 Chairperson: Prof. ANTONIO M. BATTRO
Speaker: Prof. MICHEL SERRES
The Grand Narrative Told by the Sciences
Discussion

- 15:20 Speaker: Mr. MORTIMER ZUCKERMAN
News, Global Communication Technologies and Education
Discussion
- 16:10 Speaker: Prof. RAJENDRA S. PAWAR
No One Left Behind
Discussion
- 17:00 General Discussion chaired by Prof. ANTONIO M. BATTRO
- 17:30 Coffee Break

THE EFFECTS OF GLOBALIZATION ON EDUCATION

- 18:00 Chairperson: Prof. EDMOND MALINVAUD
Speaker: Prof. David E. BLOOM
Education and Global Development
Discussion
- 18:50 Speaker: Prof. MOHAMED H.A. HASSAN
*Promoting South-South and North-South Cooperation
in Education and Research*
Discussion
- 19:40 General Discussion chaired by Prof. KEVIN RYAN
- 20:10 Dinner at the Casina Pio IV

THURSDAY, 17 NOVEMBER

EDUCATION OF IMMIGRANTS AND THEIR CHILDREN

- 9:00 Chairperson: Prof. MARGARET S. ARCHER
Speaker: Prof. MARCELO M. SUÁREZ-OROZCO
*Moving Stories: The Education of Immigrant
and Refugee Children and Youth*
Discussion

-
- 9:50 Speaker: Prof. LOUIS-ANDRÉ VALLET
*What Can We Do to Improve the Education
of Children from Disadvantaged Backgrounds?*
Discussion
- 10:40 General Discussion chaired by Prof. MARGARET S. ARCHER
- 11:10 Coffee Break

EDUCATION AND CULTURAL DIVERSITY

- 11:40 Chairperson: Prof. MARY ANN GLENDON
Speaker: Prof. WEI YU
Globalization and Cultural Identity
Discussion
- 12:30 Speaker: Prof. JEAN-CLAUDE BERTHÉLEMY
*Globalization and Challenges for Education
in Least Developed Countries*
Discussion
- 13:20 Lunch at the Casina Pio IV
- 15:00 Speaker: Prof. MINA M. RAMIREZ
Cultural Diversity
Discussion
- 15:50 Speaker: Prof. JUAN JOSÉ LLACH
Global Education Gaps: Recent Trends, Obstacles and Policies
Discussion
- 16:40 General Discussion chaired by Prof. MARY ANN GLENDON
- 17:10 Coffee Break

WHICH ANTHROPOLOGICAL BASES FOR EDUCATION AND RESEARCH?

- 17:40 Chairperson: Prof. NICOLA CABIBBO
Speaker: Prof. JEAN-DIDIER VINCENT
What Is Our Bioanthropological Knowledge of the Human Being
Discussion

- 18:30 Speaker: Prof. JÜRGEN MITTELSTRASS
Education between Ethical Universality and Cultural Particularity
Discussion
- 19:20 General Discussion chaired by Prof. NICOLA CABIBBO
- 19:50 Dinner at the Casina Pio IV

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NEW APPROACHES TO EDUCATION
IN THE GLOBALIZED WORLD

THE SYNTHESIZING MIND: MAKING SENSE OF THE DELUGE OF INFORMATION*

HOWARD E. GARDNER

a) FROM THE BEGINNING: SYNTHESIS

It is surely no accident that the story of human beings began when Adam was enticed to take a first bite of the fruit from the tree at the center of the Garden of Eden – the Tree of Knowledge. ‘Knowing Creatures’ is as good a description of our species as any. Our knowledge begins with information present at birth, as a result of our species membership and any congenital conditions that may obtain. In the early months of life, knowledge grows out of our actions upon the world and information assimilated through our several sensory organs (Piaget 1983). But as early as the second six months of life, our knowledge is already being augmented by what we learn from others, through what they do, what they show us, and what they tell us. In pre-historical times, the total sum of knowledge may well have been limited; and what was known by one generation was only barely exceeded by the following generation. Even ancient Egypt changed at glacial speed. But once writing had been invented, knowledge began to accumulate at rates that threaten to overwhelm even the most capacious human brains.

Opening our eyes and our minds to knowledge is one thing – making sense of and ordering that knowledge entails a good deal more. The Bible – as well as similar books outside the Judaeo-Christian tradition – represented an early attempt to present and synthesize knowledge about how to live. The Golden Rule and the Ten Commandments are crucial: they represent efforts to distill innumerable examples to their actionable essence. Once societies began to become self-conscious about the knowledge that had accumulated, individuals and groups attempted to set down that knowledge in ways that were systematic and that facilitated assimilation by the

* Copyright Howard Gardner 2006.

next generation. In the Western tradition, the pre-Socratic philosophers were perhaps the first individuals to try to order current knowledge. Their successors, Socrates, Plato, and – above all – Aristotle, sought to order not only knowledge of how to live but also extant knowledge about the world, as it was understood at that time. Indeed, the books of Aristotle – physics, metaphysics, rhetoric, poetics, politics among many others – represent the areas of knowledge that had been delineated to that time. It is no wonder that Aristotle was known for nearly two millennia as *The Philosopher*; that students all over the literate world devoured and even memorized his writings; and that, to this day, subsequent efforts to codify what is known are at least loosely patterned upon Aristotle's parsing of knowledge.

The naïve may think that the ordering put forth in the Bible, or in the writings of Aristotle, is self-evident. It is anything but that. To consider vast amounts of knowledge – be it scientific, ethical, historical, or ritualistic – and to determine how best to summarize and present that synthesis represents a heroic intellectual achievement. I don't have to spell out the unfathomable amounts of material that are now present in the world's libraries or on the world wide web; indeed, if Google has its way, before too long, these repositories will be one and the same. But we should recognize the formidable line of synthesizers in the West, from Aristotle, to St. Augustine, to St. Thomas Aquinas (in many ways, Aristotle's successor) to Dante, Leonardo, the Encyclopedists of the 18th century, the *Micropedia* and *Macropedia* of the 20th century, the *Wikipedia* of the 21st century. No doubt non-Western authors could offer their own list. No less an authority than the Nobel Laureate polymath, Murray Gell-Mann, has asserted that in the new millennium, the most valued mind will be the one that can synthesize. Yet, one seaches in vain, in books of education or psychology, for a comprehensive account of synthesizing, and how it can be achieved.

Accordingly, in this chapter, I offer some reflections on what synthesis is, how it can be conceptualized, how it can go wrong, and how this invaluable skill might be inculcated in our students today and in the future.

b) A DEFINITION AND SOME EXAMPLES

The synthesizing mind is capable of assimilating a large amount of information, data, knowledge; evaluating its accuracy and relevance for the task at hand; and putting together that information in a succinct form or format that will be useful for a particular audience – at a minimum, the synthesizer herself; more often, students, peers, or related outsiders.

Effective synthesizers achieve effective synthesis. Until recently, only human beings were capable of such syntheses. Since the advent of computers, it can be said that certain programs – be they medical, aviatational, or geological – are capable of synthesis.

In one sense, all of us synthesize regularly. If I have to plan my activities for the day or the week, I need to have some kind of synthesis, if I am not to make missteps. When I am teaching a class, writing an abstract, sending an annual New Year's message, or telling others about my trip to the Vatican, I engage in synthesis. Most of us do not need formal instruction to execute these syntheses, and we can distinguish between those syntheses that inspire, and those that bore or mislead.

The most impressive syntheses are a tremendous premium. In biology, for example, Darwin's theory of natural selection represented a profound synthesis of vast amounts of information that he had gathered about the flora and fauna of the planet of his time and of the distant past. Equally important was the neo-Darwinian thesis of the 20th century, where information about genetics was linked to accounts of natural selection. In psychology, Freud's theory of unconscious motivation joined together into a single, elegant account, disparate data about dreams, slips of the tongue, humor, and neuroses. While many of the individual claims of Freud have been properly disputed, recent neurological and psychological evidence corroborates much of the general picture that he presented a century ago. In economics, Adam Smith put forth the first comprehensive account of how markets work, introducing and integrating key concepts like division of labor, the value contained in production, the laws governing supply and demand; Smith laid the ground work for subsequent, more detailed and formal accounts at the macro- and micro-economical level. No one expects that we or our students will match the achievements of these master-synthesizers. However, we can learn from these examples drawn from intellectual history, and from brief synopses contained in encyclopedias and textbooks, as we attempt to understand their achievements of integration and as we seek to produce more modest syntheses of our own.

c) MODES OF SYNTHESIS

For scholars, 'overarching theories' may constitute the gold standard of syntheses. From the past, we think of the writings of Karl Marx or John Maynard Keynes, or Max Weber. In our own era, theorists of comparable scope include the sociobiologist E.O. Wilson, the cosmologist Stephen Hawking, the economists Paul Samuelson and Milton Friedman.

But theories are just one form of synthesis. Let me mention several others:

1. *Narratives*

Perhaps the oldest form of synthesis, the narrative encapsulates persons and events through the creation of a compelling plot line. The Bible has been justifiably labeled 'The Greatest Story Ever Told'. Narratives exist in the non-fictional realm: consider *The Decline and Fall of the Roman Empire*. They exist as well in creative writing – Tolstoy's *War and Peace* offers a panoramic account of the Napoleonic Wars and their aftermath.

2. *Taxonomies*

In this form, information is organized into a coherent, often hierarchical framework, along specifiable axes. The brilliant naturalist, Linnaeus, organized the plants and animals of the planet into a coherent system that has survived, with modifications, until this day. Linnaeus relied on the phenotypical features of living matter; nowadays, gene-based taxonomies are being produced. The Russian chemist Mendeleev succeeded where the alchemists of earlier eras had failed; he was able to produce an ordered Periodic Table of the elements of the earth, based on their detailed atomic structure.

3. *Metaphors, Images and Themes*

A powerful way of synthesizing information stems from the creation of singular figures of speech or images, which capture key operating factors or principles in a memorable manner. The aforementioned master theorists created evocative metaphors: Darwin proposed the branching tree of life; Freud compared the unconscious to that portion of an iceberg that is invisible to the naked eye; Smith introduced the invisible hand that regulates the market. These synthetic achievements can be conceptualized in language or in a visual image. Historian of science Gerald Holton (1988) points out that synthesizers often base their key ideas on underlying themata of which they themselves may not even be aware. For example, both Freud and Darwin saw life as a perennial struggle between opposing forces, while Smith envisioned a harmonious society, based on principles of equitable exchange.

4. *Rules and Aphorisms*

Much of folk wisdom is captured and conveyed by short phrases, designed to be memorable and widely applicable. Across societies nearly everyone learns one or another version of the phrase ‘Think before you act’ ‘Don’t try to juggle too many balls at the same time’ ‘An ounce of prevention is worth a pound of cure’. Important truths in the workplace are also shared among professionals. Lawyers are taught that ‘Great cases make bad law’. Scientists are counseled: ‘Always replicate an experiment; and the more surprising the result, the greater the imperative to replicate’. Investors learn ‘Diversify your portfolio’ ‘If an earnings report is too good to be true, it probably isn’t’; and ‘No matter how much you love a stock, if its value drops more than 10%, sell’.

5. *Key Concepts*

Fields of knowledge have key ideas which help an individual to organize a vast amount of material. In my own field of developmental psychology, a key concept is that of the ‘end state’; unless you can define a skill or concept in its most developed form(s), it is not possible to study its development. In literary analysis, T.S. Eliot introduced the concept of the ‘objective correlative’ – the embodiment of an emotion in a particular situation, such that the reader will infer the intended emotion without its being explicitly mentioned. Biologists acknowledge the import of ‘model species’ – species that have been studied in detail because they are thought to embody general biological principles. That is why so much of genetics research has been based on the fruit fly (*Drosophila*), and why the basic mechanisms of memory have been elucidated in a sea slug (*Aplysia*).

6. *Embodiments in nonverbal symbol systems*

So far my examples have been chosen primarily from daily life and from academic subjects. Syntheses need not be presented in linguistic or scholastic form; indeed some of the most powerful syntheses are embodied in works of art. Consider, for example, Picasso’s famous *Guernica*, in which the violent forces of the Spanish Civil War are powerfully conveyed in a single complex mural; or Hogarth’s evocative *Rake’s Progress*, in which the successive stages of degradation are portrayed. And at this meeting we are within a stone’s throw of perhaps the most famous synthesis of the most famous

story in human history – Michelangelo’s illustrations on the ceiling of the Sistine Chapel. Syntheses exist as well in other nonliterary arts: Wagner’s *Ring Cycle*, Gaudi’s unfinished Sagrada Familia Cathedral in Barcelona, Stravinsky’s ballet *Le sacre du printemps*, Martha Graham’s modernist recreations of Southwest Indian rituals, Charlie Chaplin’s *Modern Times* and Ingmar Bergman’s *Scenes From a Marriage* come to mind.

d) A STRATEGY FOR SYNTHESIZING

I have deliberately chosen syntheses that are well known and are drawn from a wide range of disciplines and art forms. After the fact, and after much exposure, they may appear to have been natural, even inevitable. In truth each represents a huge effort, achieved against the odds after many tries. Only with the appearance of studies like Howard Gruber’s examination of Darwin’s notebooks (1981) or Rudolf Arnheim’s (1962) examination of the dozens of sketches that preceded the completion of *Guernica* can we appreciate the struggles that antedate powerful syntheses. For the novice, a synthesis provides a powerful entry point into a complex terrain; for the expert, a synthesis evokes many fecund trains of association.

It is possible to de-mystify the achievement of a synthesis – at least in part – by providing a retroactive look, by attempting to reconstruct what is entailed in such an achievement. I designate four components:

1. *Goal*

The synthesizer is engaged in some kind of project, either one assigned by others (paint this ceiling, please!) or one assigned to oneself (on my voyage on the Beagle, I am going to survey species scattered around the globe and attempt to make sense of that variety). The goal of the project may – indeed probably is – somewhat vague at the outset. It may be reformulated partially, or even wholly, in the course of work. But one cannot even commence a synthesis unless one has at least a rough ‘end-target’ in mind.

2. *Starting Point*

Whatever her goals, the synthesizer needs a starting point – in metaphoric terms, a plot of dry land. This point of departure may be earlier syntheses, powerful questions, incomplete or inadequate accounts, a dis-

agreement with a current synthesis. Though the page may be literally blank, it is never blank metaphorically – indeed, earlier instantiations may constitute an obstacle, even as they may be extremely powerful and yet flawed in some fundamental way. Only a fool pays no attention to what has been done before.

3. *Selection of Strategy, Method, Approach*

This choice is probably the key decision made by the aspiring synthesizer. In what form or format will the synthesis appear? What is the epistemic form or frame? (Perkins, 1997) And how will the synthesizer go about moving toward the synthesis? Most commonly, and entirely appropriately, the synthesizer falls back on the tools-of-the-trade of his discipline or profession. These can range from the logical analysis of the philosopher, to the interpretation of texts by the literary critics, the execution of pilot studies by the biologist, the maintenance of notebooks, sketchpads, and diaries by the draughtsman or the novelist. In most cases, recourse to and use of these methods should be second nature, the achievement of years of journeyman practice. But there is no guarantor that the traditional skills of the trade will prove adequate to the task at hand. And so the use of the method must always be tentative, subject to revision or even, on occasion, rejection.

4. *Drafts and feedback*

At a certain point, or perhaps at many points, the synthesizer must take an initial crack at the synthesis: the abstract of the paper, the outline of the lecture or chapter, the modello for the building or statue. This ‘first stab’ can even be a provisional synthesis in itself. We know from the notebooks of the aforementioned individuals – Picasso, Freud, Darwin, Graham *et al.* – that first drafts attempts are often primitive. At the same time, however, they may contain the nucleus of the final version – the key image, metaphor, theme or concept. The philosopher Charles Sanders Peirce (1955) claimed that these shrewd guesses involved a special mental power that he termed ‘abduction’.

Crucial at this point are relevant critiques and feedback. Early in an individual’s career, the input of others who are more expert is highly desirable. With time, the synthesizer may well be his or her best critic. The difference between the rough sketch and the final product is crucial, however,

and the distance is rarely traversed in the absence of expert criticism. Ezra Pound's critique and editing of Eliot's *The Waste Land* was so expert that Eliot dedicated the poem to Pound, with the appreciative descriptor 'the superior maker'.

Traditionally, across many fields, mastery and synthesis occurred through a combination of apprenticeship and self-education. Indeed, several of the aforementioned synthesizers employed both modes. Once a field achieves a certain level of complexity and maturity, however, one cannot become an expert without formal training. Education has seldom been examined from the perspective of synthesizing, however. In what follows, I first sketch out the general lines of an educational regimen that I favor, and then revisit that regimen through the lens of synthesizing.

e) A SNAPSHOT OF SCHOOLING THROUGH THE LENS OF SYNTHESIZING

During the preschool years, the young child has little trouble synthesizing. Making connections, tying ideas and images together, are her natural mode of cognizing. Only two limitations are manifest. First of all, the child's knowledge base is thin, and much of what she knows is erroneous. After all, we did not evolve as a species to have correct knowledge of the world; we evolved to live long enough to reproduce. Second of all, the child's synthesizing – if I may call it that – is uncritical. Some of the figures and the connections made by young children are beautiful, inspired, worthy of quotation; but many of them are simply quirky, without any lasting merit.

After the first five or six years of life, children's connection-making becomes much less adventurous. In our own work, we have spoken about the emergence of the 'literal stage' (Gardner and Winner, 1982). Whether it is playing a game, speaking properly, learning an instrument, or doing sums and 'word problems', the growing child wants to know the exact rules. Free flowing metaphor-making and image construction cease. It is tempting to attribute this decline in integration and synthesis to school. But it is just as likely that formal schooling begins all over the world precisely because youngsters of this age are ready, even eager, to learn the 'right way' to do things.

All over the modern world, a general educational sequence is followed, and with good reason. During the primary years, young students learn the basics. Traditionally, these are reading, writing, and basic arithmetic; nowadays, many places would add the use of the computer. Once the three Rs

have become relatively fluent, students are ready to master the major subject matters or disciplines of their culture. Whereas this mastery once featured religious texts and practices, nowadays the emphasis falls on science, more advanced mathematics, history, foreign languages, and, perhaps, one or more art forms.

I term this phase ‘disciplinary mastery’. It is and should be the major burden of middle and secondary school. But the delineator of disciplinary mastery engenders controversy. In many places, such mastery involves the learning of facts and figures. In others, the emphasis falls on carrying out certain practices – writing a coherent essay, carrying out experiments in the laboratory, executing a work of art. Less frequently, students come to master a particular way of thinking: what it means to think like a scientist (relating findings to theory), a historian (acknowledging human agency, avoiding ‘presentism’), an artist (organizing materials so they capture a meaning that can be apprehended by diverse audiences) (Gardner 1999).

The ways in which disciplinary mastery is approached determines whether synthesizing is featured or ignored. Students may be presented with one synthesis – that favored by the teacher or the textbook. Students may be given lots of information and asked to make sense of it – thus creating their own syntheses. All too often, the challenge of synthesis is ignored or minimized or assumed to coalesce on its own. Under the latter, unsupported circumstances, the muscle of skilled synthesis is most unlikely to develop.

Nowadays, in the world of practical knowledge, work across the disciplines – which I will tentatively label as cross-disciplinary work – is at a premium. Sometimes, the term is applied to scholastic work that involves more than one discipline, sometimes to professional collaboration in which different experts rub elbows with one another – for example, a medical team involving physicians, nurses, therapists, social workers and the like. To be skilled at either kind of cross-disciplinary work requires the capacity to synthesize knowledge and draw on it flexibly.

In our own work, we find it useful to distinguish among three species of cross-disciplinary synthesizing. Much of this work is best characterized as *multi-disciplinary*. An individual first studies a topic (like the Renaissance) through history, then through science, then through the arts. The teachers and texts make no effort to tie together these disciplinary perspectives; if connections are to be made, they are left to the wit of the student.

Much more challenging is genuine *interdisciplinary work*. In such work, an individual studies a problem or topic through more than a single disci-

pline and seeks to combine – in our term, to synthesize – these perspectives as a means of achieving deeper understanding. The ultimate understanding should be greater than the sum of its parts. For example, appreciation of the achievement of linear (geometric) perspective in the paintings of Renaissance art should be enhanced if the student approaches the issue through the study of artistic history, of geometric principles, of technical instruments. Challenging to achieve, interdisciplinary understanding can be extremely rewarding.

We can distinguish, roughly, among several forms of interdisciplinary thinking. The example of artistic perspective reflects one form, growing out of a realization that a phenomenon is too complex to be elucidated by a single discipline. A second form arises from the need to attack a pressing practical problem. For example, the reduction of poverty cannot be tackled simply by economical analysis. This ambitious goal requires understanding of cultural influences and traditions, individual psychology, political pressures and opportunities. A third form of interdisciplinarity involves a determination of whether a concept or method can be applied across diverse disciplinary contents. For example, once complexity theory had been developed in mathematics, efforts were launched to apply it in a range of fields, from physics and biology to economics and history (Gell-Mann, 1995). Yet another form involves contextualization: the propounding of a scientific theory, like Darwinian evolution or Einsteinian relativity, can be better understood in light of the intellectual and material conditions present in the world at the time of its initial statement.

A mere statement of these varieties of interdisciplinary thinking suggests that their achievement is challenging. Not that many educators are comfortable with more than one discipline. Even those who have achieved comfort may not know the best way to share their expertise with students. For their parts, students are struggling to master the knowledge and procedures of single disciplines; it may be too much to expect that they can synthesize disciplinary strands, even with help.

Yet, the press for interdisciplinary synthesis is unlikely to abate. The question becomes: how can we meet this press, taking into account the limited knowledge and capacities of nearly all students and many teachers? I recommend the fostering of ‘multi-perspectivalism’, which can be thought of as an intellectually-honest precursor of genuine interdisciplinary work. This jaw-breaking term acknowledges the need for thinking across the disciplines without implying that students have mastered the individual disciplines. In a multi-perspectival milieu, students are

exposed to different approaches to a topic. In that sense, multi-perspectivalism begins with a multi-disciplinary tack. However, multi-perspectival thinking develops as the student is regularly exposed to the various disciplines, and comes to know something of their particular stance. And, crucially, while the student begins as a spectator, he or she is gradually drawn into the enterprise as a participant.

A helpful analogy in conceptualizing 'multi-perspectivalism' is the 'wearing of different hats'. Suppose that in an American history course, the instructor wants students to be able to understand historical events from the perspectives of economics, politics, and sociology. In an exposure to a first example – say, the American revolution – the student learns how the revolution has been interpreted by economists, then by political scientists, then by sociologists. A similar set of perspectives is brought to bear on Jacksonian democracy and on the events leading to the Civil War. After several 'spiral' exposures to the procedure, the student should be able to understand something of these varying perspectives, and to raise points that would be meaningful to the respective disciplinarians. And in the happiest circumstance, by the conclusion of the course of study, the student should be able to listen intelligently to such discussions, to participate actively, and perhaps even to anticipate how each disciplinarian might approach the phenomenon-under-discussion.

Note the difference between 'interdisciplinarity' and 'multi-perspectivalism'. In the former case, the student is expected to have achieved significant mastery of more than one discipline – a daunting assignment. In the latter case, the student picks up enough of the approach so that he or she can follow discussions and eventually participate in them; but there is no requirement that the student have independent mastery of each discipline. We can see the analogy at work in the practical forms of cross-disciplinary work. On an effective medical team, each of the participants has her own expertise. It is not expected that the physical therapist can do the physicians' work, or that the physician can do the social worker's job. Rather each needs to be able to understand the approach of the others sufficiently to enter into useful conversations; and should one of the experts be absent, to anticipate her possible questions, reservations, and contributions.

I do not mean to apply that the only forms of synthesis occur in cross-disciplinary courses, nor that all cross-disciplinary work necessarily entails syntheses. Still, it is true that synthesizing thinking is at a particular premium in learning that involves more than one discipline. It is here that one is likely to find the most powerful metaphors, theories, concepts, images,

and narratives. Those incapable of such thinking will find them at an increasing disadvantage in our knowledge-exploding, knowledge-connecting world.

f) SYNTHESSES GONE WRONG

Not all syntheses are equal, and not all syntheses are accurate. In the case of young children, I have already noted their penchant for making connections, while indicating as well that these connections may stand out more for their charm than for their cogency. Syntheses can go wrong in any number of ways. To mention just a few:

1. *Insufficient Scope*

A synthesis about the Renaissance may focus excessively on the importance of exploration and neglect important intellectual, scientific, artistic, and humanistic advances.

2. *Excessive Scope*

A synthesis in the sciences may be too broad, attempting to bring together the natural sciences and the social sciences, and ending up with a set of questionable principles and misleading conclusions.

3. *Inappropriate Inclusions or Exclusions*

An attempt to explain changes in American society as a result of immigration may group together voluntary and involuntary (slave) immigrants, while failing to note that the original settlers were also immigrants.

4. *Unnecessary Syntheses*

In an effort to explain the nature of combustion, chemists in the 18th century posited the existence of a substance called phlogiston. In an effort to explain the transmission of light and heat, physicists in the 19th century posited the existence of a medium called ether. Acute thinking and experimentation by scientists eventually demonstrated that these entities were illusions, not necessary for explaining the operations of the physical world.

Persons may also be attracted to synthesizing for a variety of reasons. In happier instances, the aspiring synthesizer is curious, has read widely, likes to play with ideas, and realizes that a candidate synthesis may be appealing and yet misguided. Less felicitously, synthesizing may appeal to individuals who do not like to think precisely, who are literally undisciplined, who lack or spurn critical faculties. Correlatively, some good students also resist synthesizing because it cannot be taught and evaluated as precisely as paradigmatic, disciplinary thinking. In addition to monitoring the quality of a synthesis, one does well to focus on the motives and the scrupulousness of the would-be synthesizer.

g) EDUCATIONAL RECOMMENDATIONS

How, then, to encourage better synthesizing? To begin with, it is useful to recognize and make use of means that are primarily implicit or tacit, as well as those that are explicit. On the implicit side, it is valuable for young persons to grow up in milieus in which efforts to synthesize are regularly featured. Whether sitting around the dinner table at home, or listening to a commentator on television, or participating in some kind of informal apprenticeship, young persons benefit from 'live' examples of synthesizing by respected authorities – as well as critiques of those efforts by others who are equally knowledgeable.

Such implicit examples form an important backdrop but rarely are they adequate in themselves. For this reason, I favor explicit efforts in formal schooling to model and train the processes of synthesis. Such efforts can begin in the early years of school, when students acquire information about a topic and are asked to present their learnings in an integrated manner. Oral reports, essays, and projects serve as promising training grounds for judicious synthesizing. Students should be exposed to instructive models of synthesis, be asked to synthesize, and receive useful, pointed feedback on their efforts.

Students can also learn explicitly about synthesis. They can be introduced to distinctions of the sort that have been presented in this paper. For example, they should understand the importance of a goal; an analytic stance; one or more disciplined methods on which to draw; the value of successive drafts with suitable feedback. They should have experience in producing and critiquing various forms of synthesis – theories, narrative, metaphors, images, and the like. And they should also participate in collective efforts to critique

the syntheses made by others – whether the producers of the synthesis-in-question are well known authorities or fellow classmates.

By and large, the amount of synthesis required in college admissions tests has been extremely modest – it may amount to no more than producing the best title for an essay or summarizing its main point in a sentence or two. Far more ambitious efforts are possible. Consider a pilot program being devised by the Rand Corporation that tracks the quality of student learning in college. Students are presented with an assignment – for example, draft a position paper for a mayoralty candidate who has been challenged to lower the crime rates in his city. Students are given a variety of documents, ranging from charts of crime data to newspaper reports on heinous crimes to summaries of research results, and asked to draw on them in preparing the position paper. In an examination for becoming an elementary school teacher in France, the candidates are presented with four papers on the transition from oracy to literacy and asked to prepare a synthesis of arguments and conclusions. In the present milieu, we teach what we test for; to the extent that we have appropriate or powerful tests of synthesizing abilities, we will be stimulated to develop effective instructional methods.

h) FUTURE PROSPECTS

Irrespective of the faddism that may surround concepts like interdisciplinarity, skill at synthesizing is becoming an imperative for the new millennium. Those who can synthesize well will be valued; those who cannot will have to rely on the syntheses of others, and may be consigned to the lower end of the occupational and economic ladders.

Of course, it is possible that, just as much analysis is now computer-driven, much of synthesizing in the future may occur through the use of computers. Indeed, experts ranging from the designers of the World Wide Web to the impresarios of Google, are attempting to develop programs that ‘understand content’ sufficiently well so that valuable précis and synthesizing can be fashioned. Time will tell how expert these programs are, where they excel, and where they fall short. Still, there will be a need for individuals who can compare the strengths of various syntheses, as well as individuals who can prepare the more ambitious or more original syntheses – ones that will continue to elude even the most talented programmers.

In a paper focussing on synthesis, I have naturally stressed the importance of this needed but relatively unexamined capacity. But education cannot and should not ever be monochromatic. Within a broad study of 'five minds for the future', I have sought to locate the place of synthesis. As I construe it, synthesis occupies a middle ground between disciplined learning, on the one hand, and creative thinking, on the other. In disciplined learning, one masters the ideas and moves of particular crafts and disciplines. As I've stressed, no meaningful synthesis is possible in the absence of at least some disciplinary mastery. On the other side of an epistemological continuum, creative thinking involves an explicit rejection of current understandings, a commitment to raise new questions and produce unexpected yet appropriate answers. Creative thinking involves a foundation of disciplinary knowledge and current syntheses; but one cannot become overly dependent on the current conceptualization if one is seeking to break new ground. Nonetheless, few would question that the most valuable syntheses are often highly creative; and most would agree that even the most bold creation – that of a Picasso, a Martha Graham, an Einstein – involves a good deal of synthesis of what has come before. Indeed, creations in the later years by the most radical innovators often represent a synthesis between long-standing traditions and the recent breakthrough (Gardner 1993).

Two other kinds of minds need to be cultivated in the future. Of great import is a mind that respects other persons, including – and perhaps focusing on – those individuals and groups who seem to be different from oneself. At a more abstract level, we need to cultivate a mind that proceeds in an ethical manner: one that seeks to determine what is right for one's profession, and for one's role as a citizen, even when that course of action runs against one's self interest. At present these noncognitive minds – respectful and ethical – are more important than ever before. It does not suffice to nurture individuals who are disciplined, synthesizing, and creative, if they are not respectful and ethical as well. Perhaps, indeed, how to nurture and integrate these five kinds of minds constitutes a fundamental task for future synthesizers and for synthesizers of the future.

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THE \$100 LAPTOP

NICHOLAS NEGROPONTE

The idea for a \$100 laptop suddenly has become very popular. Yet there was nothing sudden at all about its beginning. The vision of providing every needful child with an affordable personal laptop grew out of nearly thirty years of research on computers and education at the MIT Media Lab. From the start, this work has been substantially based on the theories of Seymour Papert, as well as the people who have studied with Seymour, particularly Mitchel Resnick.

In the early 1980's, the French government invited Seymour and me to design pilot computers-in-education programs for developing countries. We worked in Pakistan and Colombia and, most notably, in Senegal, where we installed a couple of hundred Apple2s, a gift from Steve Jobs, in schools outside of Dakar in 1982. For a time, these school kids commanded more computing power than did the central Senegalese government.

In 1986 we moved to Costa Rica, where Oscar Arias, the president-elect (and future Nobelist), had made computers in education part of his campaign platform. Because of the new president's enthusiasm, and Costa Rica's modest size, we were able to establish a very successful, and enduring, nationwide program.

The Costa Ricans also did something very clever. Instead of making this a government project (and thus vulnerable to shifts in the national political winds) they created the independent Omar Dengo Foundation to administer it. That foundation still thrives, and continues to do extraordinary work. In fact, we think of Costa Rica as the exemplar for the use of computers in primary and secondary education. Costa Rica today earns in excess of half its export income from integrated circuits, more than coffee and bananas combined. The Omar Dengo Foundation deserves considerable credit for this fact.

Our next program of interest was a late 1990s telecommunications project in India, where we deployed very early stage WiFi to connect the Indian

and Pakistani side of the disputed mountain territory of Kashmir. It was very low power, but very focused.

The study was interesting and successful. But since then we've decided that connectivity is not our central technological hurdle. I frequently argue with Bill Gates on this point. Bill says connectivity is a barrier. The reasons I do not agree are many. They include WiFi, WiMax, 3G, 4G, wired techniques, satellites and various other technologies for connectivity. These all are moving ahead rapidly and don't need my help or anyone else's. Connectivity is happening on its own, and will only get better and better, soon.

The really serious barriers to computing for kids in the developing world are the cost of the machines themselves, and power consumption. Your own commercial laptop consumes as much as 60 watts. Ours must not use more than two.

* * *

Two developments directly sparked the \$100 laptop initiative. The first was a bit of an accident.

Back in 1999, when money grew on trees, my wife and I built some primary schools in rural Cambodia. Our son, Dmitri, who was living in Milan at the time, coincidentally was having girlfriend troubles. So I asked him, 'If you can suffer the indignity of working for your father, why don't you go work in Cambodia and bring computers and the internet to these primary schools we have built?' He agreed.

Thaksin Shinawatra, who is now the Prime Minister of Thailand, at the time was a telecommunications executive. He gave us a number of dishes to connect the schools to the internet. Since the village of course had no electricity, we would have to generate it ourselves.

Simply in the interest of conserving that power, I sent Dmitri 50 laptops, saying, 'Why don't you just use laptops? They are more power efficient than desktops, plus the kids can take them home'. So that's what we did.

The children took their laptops home that first night. Next morning, they reported to my son that their parents told them not to open the machines lest they break them. This was a reasonable concern among villagers whose average income is \$47 per year. But Dmitri reassured everyone it was OK to open the laptops, and the parents loved them at once. Reason: They instantly were the brightest light source in the house. In fact and in metaphor, it was an extraordinary moment.

Meanwhile, flashpoint number two unfolded. Seymour Papert persuaded Gov. Angus King of Maine to adopt a one laptop per child policy at the state level. In 2002, after the necessary legislation passed, Apple iBook laptops were introduced to seventh- and eight-graders throughout the state. Since then, Maine's schools have phased in laptops both in the lower and higher grades.

The results so far are exciting. The 80 percent or so of Maine school teachers who opposed the program now support it wholeheartedly. Truancy is down. The kids are behaving better in class. Their parents are attending parent-teacher conferences in much higher numbers. And students have surprised their teachers with a deluge of after-hour emails to discuss their academic assignments.

This is not a rigorous analysis, of course. But when you get those kinds of results, it seems to me that we can dispense with further pilot projects and more study and move to make laptops sufficiently inexpensive so we can get one to every child. That is precisely what I have been doing for the past two years.

Perhaps the best decision we've made so far is to organize ourselves into a non-profit association, which will soon become the world's largest non-profit consumer electronics company. The case for being a non-profit is compelling. It allows the board of directors to perfectly align the mission so that whenever there is a technological development that lowers the price of the laptop, the children get the lower price.

In the for-profit world, the exact opposite is true. For example, I happen to be on the board of directors of a \$40 billion company, Motorola. If our company invents something that lowers the cost of the display by \$10, guess who gets the ten bucks? It's the shareholders, for the most part. In fact, that is management's legal obligation. If a corporate president or CEO does not distribute wealth to the shareholders in this way, we throw him, or her, out. That's the way it works.

The vast scale at which we intend to operate also is an important factor, and not principally because it will allow me to buy components at favorable prices. The more important effect will be to get companies to change their strategic plans to help further our agenda.

For example, I visited one company that makes big, bright displays with perfect color, perfect pixels, perfect everything for the high-end market. I told them we do not need such size and brightness and perfection. And they replied that making a small, less-than-perfect display was not of interest to them. 'That's a shame', I said, 'because I was looking for a hundred million units a year or more'.

'Oh, well!' I quickly was told, 'perhaps we *could* take a look at this project!'

About laptop economics. Fifty percent of the cost of your personal laptop goes to cover sales, marketing, distribution and profit. We have none of that, so our hundred dollar laptop on the fair market is really a \$200 laptop. We just do not have \$100 of those costs.

Second, 75 percent or more of your laptop's computing speed today must support a grossly obese operating system. This is true of almost any piece of software, whether it is from Microsoft or Lotus or Adobe. By adding more and more features and options we have created a race of morbidly overweight monsters.

The way around these great mounds of useless flab is rugged, open-source software. A very good example of the open-source model is Wikipedia, the on-line encyclopedia that is written, and edited, by its users, hundreds of thousands of them around the world.

The gray market. We are dealing with the possibility of theft or misappropriation of the \$100 laptop in several ways. One approach will be to build a commercial machine in parallel. Another way is to make the laptops so distinctive that anyone would know, at a glance, that if you aren't a student or a teacher you shouldn't have one. Consider, for example, U.S. post office delivery trucks. They're very distinctive and you do not see too many people stealing them because there is no secondary market for post office trucks. If necessary, we will also consider technological measures to prevent the laptops from being misused.

Probably the most talked-about feature of the \$100 laptop is its hand power crank. But our customers, the national governments in developing countries, are also very keen for the machine's dual-function display. It is both a full-color LCD screen and, with a flick of a switch, a high-resolution e-book, sunlight readable.

This feature is critically important, because it will allow governments to replace, or update, texts electronically, saving a country such as Brazil, for example, a big chunk of the \$20 a year that Brazil now spends per child on traditional school texts. From our perspective, the e-book function is sort of a Trojan horse. The real magic will come when the kids are connected and the Greeks come out at night, so to speak

As of now, we plan to begin shipping the 5-10 million units of our Generation 1 machine in the first quarter of 2007. We expect the first of our large customers will be: China, Argentina, Brazil, India, Nigeria, Egypt and Thailand – our CABINET. We will also try to make at least some machines available to any other appropriate country that requests them.

The state of Massachusetts also is included in the mix, in part because wherever I travel outside the U.S. people ask me if the \$100 laptop is such a good idea why aren't you distributing it at home. In July of last year, we met with Mitt Romney, the governor of Massachusetts, to explain our project. In September, his office called to say that tomorrow the governor would propose one laptop per child legislation for Massachusetts, and would I join him at the press conference? Next thing I knew, stories and images of the governor and me and our little model of the \$100 laptop appeared on television and in periodicals around the world.

Looking ahead, we see the \$100 laptop becoming the \$50 laptop and even the \$30 laptop as technologies – particularly display technologies – advance, allowing us to build better and better machines at lower and lower cost. But for all the innovation and expertise we can bring to bear on the laptop, the essence of one laptop per child is not technology. Rather, it is technology in service of education. Today, much that is called education in the developing world, especially in the rural parts of the developing world, is really quite minimal. Teachers often have only a sixth- or seventh-grade education themselves. They may be well-intentioned, with big hearts and compassion, but to really prepare a child to thrive in the dawning Age of Information you must leverage them as learners. As Seymour Papert has shown, the old top-down paradigm is no longer relevant. Children must become more actively engaged in their own learning. And for that, the essential tool will be the \$100 laptop.

GLOBALISATION AND EDUCATION AN OVERVIEW

M. GOVIND KUMAR MENON

Introduction

We live in an era of globalisation – there can be no going back on it.

Countries have little choice whether to globalise or not. Globalisation is a rapidly ongoing phenomenon that generates a constant debate on its negative aspects. A far more profitable exercise would be to understand its manifestations, and the forces that drive it. This would help us in planning how to derive the maximum benefits for society as a whole.

No specific force or entity controls the direction and tempo of this new phenomenon. It represents a highly interactive system which has had, and will continue to have, great implications for the future of society.

Any discussion on the effects of globalisation on the field of education is incomplete without an understanding of the various aspects of this new phenomenon: the driving forces that have brought this about; its essential characteristics which will reflect in its impacts; the various areas of human activity where its manifestation can be seen in most tangible forms (e.g. economic and financial, social, cultural, and educational); and the manner in which the manifestations in these various areas interlink and constitute feedbacks.

The Driving Forces of Globalisation

The phenomenon of globalisation has become possible primarily because of the advances that have taken place in science and technology, resulting in major disruptive technologies across a range of areas. The invention of the jet engine and a series of innovations that have brought about major changes in the scale of transportation modes has led to the ability to move people and goods using wide-bodied jet aircraft, giant ocean-going vessels, containerised transport and pipeline systems.

Communication has been enhanced through the use of broadband telecommunication channels. This has been made possible through fibre optics and laser technology, satellites, and wireless communications, all based on scientific discoveries (over the last century) and related technologies. Today technology has the power to connect every one of the six billion individuals that constitute the population of the globe – though this may not actually happen. The power of this connectivity on the human psyche and the areas of social interaction are truly profound.

Well before the advent of globalisation, Jean Jacques Rousseau had proposed that man was good by nature, a ‘noble savage’, like all other animals, but was corrupted by the growth of social interdependence converting the *amour de soi* into *amour propre*, which is unnatural. The result has been pride and the drive for self-aggrandisement.

Through these communication channels, one can move data from any one point to any other point on the Earth. The data can be instantaneously processed and analysed on computers, then displayed on screens of computers, mobile phones, television sets and the like. People and goods are moved at speeds that are still tangible; but data (e.g. bits) can be moved at the speeds of electrons and electromagnetic waves. This capability has meant that financial resources can be transferred on an almost instantaneous basis, thus transforming the economy.

The power of information technology has resulted in wholly new ways of communication such as electronic mail, search for information on the World Wide Web, digital storage and retrieval of all types of information, call centres, business process outsourcing, etc. It has enormously increased the power of the media. This revolution has created a global village and the emergence of the concept of a knowledge society.

It is true that a significant part of global society lives with the legacy of the past: as for example, the less developed nations, and in varying degrees the disadvantaged in all nations. Corresponding to this, there are the many divides that have been the subject of extensive discussions: the economic divide, the digital divide, the knowledge divide, etc. But overall, we now have new capabilities and powers available to human society as a whole, that had never been dreamt of before. Globalisation will have fulfilled its true purpose when these capabilities are used for the greatest good of the largest numbers, and not for the self-aggrandisement of a few.

In a lecture at The Royal Society in 1992, Akio Morita, one of the founders of Sony, had emphasised that science, by itself, does not result in technology and cannot be equated to technology. In addition, for the suc-

successful application or utilisation of technology, there is need for something which is different – ‘innovation’. Innovation is essential in all phases associated with a product such as finance, management, law and marketing if knowledge through science has to manifest itself as capabilities available to human society. Innovation calls for a spirit of entrepreneurship.

Other factors through which globalisation manifests itself, such as economics and finance, are equally important for ensuring that it reaches fruition. Thus, without an economic incentive – as for example, a market that would readily accept a product when delivered – a technology will not fructify; for that to take place, financial resources are essential. All of these constitute a feed back system that is connected.

Characteristics of Scientific Advance and its Impact on Globalisation

The most important feature of the advance of science and technology is the extremely rapid exponential rate at which it is taking place; the doubling time is estimated to be about 15 to 18 months. This is more familiarly known as Moore’s Law in the areas of computers and microelectronics. It has been a characteristic of scientific and technical advances since the early 1900s, and in very different fields such as biotechnology.

This rate of growth of science and technology will trigger an advance in globalisation at a similar rate of growth. It is important for society, and various functioning elements that relate to it, to be able to adapt to such change. The capabilities provided by education will be the key to this. It would also be important to reflect on whether the average human brain can cope with such rapid change on a continuous basis. The issue is: what other effects will there be on evolutionary and other processes in respect of brain development and functioning, with its impact on the body?

Francis Bacon had remarked: ‘Knowledge is Power’. It is this power that drives the phenomenon of globalisation that we witness today. Those who have knowledge, or the means of acquiring it rapidly, are the ones who stand to benefit most from the advances of globalisation. A race is on here, the outcome of which will depend on the ‘survival of the fittest’. Education will be the key to that survival.

A second characteristic of the advance of science and technology is the number of disruptive technologies with a major impact that are emerging in parallel. These represent wholly new ways for the functioning of human society.

The third important characteristic is the requirement of very large numbers of trained professionals for the development of new knowledge,

as also for its application and utilisation. Not only is this a matter of scale, in terms of the numbers required, but also of the type of education now called for. This has to be highly professional and, unfortunately, narrowly technical. The services sector will gain in importance as activities in society become increasingly knowledge-based. As a result of this basic change, education has to provide for the development of human resources that is needed for this sector.

The Industrial Revolution caused the present industrialised countries to move from being major agrarian economies to predominantly industrial ones. The energy-intensive technologies and machine-made products resulted in a manifold multiplication of productivity, as also the mass-scale production of items with a high degree of uniformity. This brought costs down, and made abundant mass-consumption possible. It represented a step function shift in societal functioning. Engineering as a major profession, and as a sector of education, came into being as a response to this. With time, various sectors of specialisation developed in engineering, such as civil, chemical, electrical, mechanical and electronic, and an increasing number of other sub-disciplines. The products that were designed and manufactured with engineering capabilities also called for large numbers of trained personnel at lower levels, both for production as also for maintenance and servicing. From a pattern of skilled workmen with their apprentices, the scale enlarged to an extent where vocational training programmes on a large scale, such as in polytechnics and industrial training institutes, were required. Engineering colleges became an essential part of the university system, growing with time to the extent where they have become universities in their own right.

Similar to the advent of the industrial-age economy, we now find the corresponding needs of a completely new economy. Areas of business, industry and services have come into being that was not contemplated a quarter of a century ago. Our educational systems have to cater to the requirements of very large number of professionals in these areas.

Economic Aspects of Globalisation

A major consequence of globalisation is the conduct of economic activity on a global basis without any reference to national boundaries. It is a successor to earlier movements towards trade on a free basis, without restrictions of any nature, particularly financial, in the form of duties and levies. Over a period of many years these issues were debated extensively at

a world forum referred to as Global Agreement on Trade and Tariffs (GATT). A body referred to as World Trade Organisation (WTO) has since been brought into existence. Further, the discussions now relate not only to physical trade but also various other aspects of economic activity that are relevant to the deeper economic integration of countries: as for example, finances, investments, services, technology. If any country places undue restrictions on free trade in any of these areas, in violation of international agreements, it will be liable to action. This is recognition of the highly interconnected and inter-dependent world that we live in.

The concept of globalisation involves the process of scaling from a national situation to a global situation. In the case of economic activities within a country, all the inputs required for production and services are obtained from any part of the country and made use of at the appropriate locations within the country. Thereafter they are marketed throughout the country; even in this, various barriers are sought to be erected and financial incentives and disincentives are laid out for the benefit of parts of the country or specific stake holders. Similarly, under globalisation, the same is attempted with a simple substitution of 'country' by 'world'. A seamless and borderless world would facilitate the movement of ideas, finances, resources and goods – and indeed of people. Restrictions on the various types of activities and flows would need to be kept to a minimum, subject to any locale-specific needs.

This would be an ideal situation – but the world is not a level playing field. There are, on the one hand, countries that have become well developed over long periods of time. These are referred to as the rich countries of the North. Amongst these, it is possible to implement the ideal practices of an interdependent economic system. Even here, because of age-old vested interests, there are barriers; we see the disputes between Europe, North America and Japan. We then have the so-called countries of the South, of the Third World, which are significantly underdeveloped. In between are the countries which are trying to emerge from this state of underdevelopment to become partners of the countries of the North; we thus have a highly heterogeneous and unequal set of players on the global economic scene. In this situation, the costs and benefits are unequal between the various parties. Relatively recently, industrialised countries colonised lands from which they could obtain commodities and raw materials; and these lands would, in turn, act as markets for the consumption of the industrial goods produced. This created a situation of dependence and exploitation that characterised the colonial period; it should not be repeated under the rubric of globalisation.

Often, the countries of the North regard the resource-rich countries of the South as desirable suppliers of resources, and equally as emerging markets for finished products. The controversies and conflicts relating to these issues have bedeviled the various WTO negotiations. Ultimately, it is essential to evolve a fair and just system that is not exploitative. Ethical considerations are generally ignored in this prevailing scenario of intense competition, and the focus on materialism.

There is a pressure of migration of people from the countries of the South, where populations have grown and continue to grow rapidly, to avail of the opportunities that they see in the wealthy countries of the North that have small or zero population growth. This aspect, however, does not figure in globalisation. The wealthy countries are prepared to allow migration from the South only of those who bring with them special capabilities of intellect or skills that would contribute significantly to their development.

In this era of globalisation, and its continuing growth, the comparative economic advantage of nations is becoming less and less dependent upon naturally provided factor endowments (e.g., land, labour and special resources) and more on the richness of human intellectual resources. Capital and productivity are crucial.

One important aspect of the newly emerging scenario is that the power of national governments is being reduced, since economic activity is being allowed to proceed on a global basis as defined by market forces. Earlier, some of the controls, levies and duties constituted sources of income for governments. The argument may be advanced that these new economic activities provide for employment, constitute a component of the gross domestic product (GDP), and result in foreign exchange earnings. Whilst this is true, it must be remembered that governments continue to bear the responsibility for massive expenditures relating to defence; infrastructure, development of science and technology; on social sectors such as education and health; and providing a social net for those who need it; etc. Governments are now able to raise fewer resources from society for all of this. Members of society with the resources now wish to spend these as they like; their wealth is regarded as an incentive for their entrepreneurial contributions to economic development. Generally, a market economy does not deal very well with those who are outside it, or with the social underpinnings of a good civil society. This is because economic impulses tend to be more powerful than social and cultural impulses. Unfortunately, there is no effective international cooperation that could be regarded as a form of supra-national governance to manage these market-driven forces. The market economy does not seem to recognize adequately that a good civil society is essential for its survival.

Transformations in the Functioning of Society Brought About by Globalisation

The most visible areas of societal functioning impacted by globalisation are the large number of technological artefacts that are now part of day-to-day living. These technological aids have entered our lives in the last century; and in the present form, in just the last few decades. Increasingly, life now revolves round services like fax, xeroxing, e-mail, search on the World Wide Web, ATMs, and instantaneous communications at any time and at any place. The tempo of life associated with this usage has now become commonplace affecting a large part of human society.

The impact of the audio-visual media exposes one to real time, or near real time, images of events happening all over the world. This leads to a picturisation in the human mind of global events, on an almost instantaneous basis, causing each person to closely identify with events that are taking place in the world as a whole beyond one's immediate neighbourhood. Unfortunately, various forms of unreal escapist entertainment have arisen through the overwhelming commercialization of the visual media. The entertainment and commercialization tend to focus on consumerism.

With the emergence of a market society one begins to see a globalised, homogenised culture in relation to clothes, fashions, cuisines, attitudes to sex, and the like. In many ways this culture is rootless. A rising tide of aspirations leads to a value system based on the monetary economy – the result is greed which tends to be insatiable, with the desire for self-aggrandisement divorced from ethical aspects.

However, there are also positive aspects such as the emergence of the hybridisation of cultures. Thus, the Blacks in the Americas have cultural traits inherited from their African ancestors, such as a sense of colour, and of rhythm. These are now part of many cultural forms that characterise the Americas.

The negative aspects arise when in the process of globalisation many valuable aspects of earlier cultural forms, including languages, are destroyed. Language is often looked upon as a technical device to communicate between two individuals and within social groups. However, any natural language ultimately represents a way of life and a way of thinking in which many aspects of the environment and of experiences are embedded. Thus, Chinese or Sanskrit will represent ways of looking at life, and arriving at solutions, in a manner which could be quite different from any one brought up in one of the western language groups. If destroyed, one will alienate oneself from past experience and intellectual direction in pursuit of the future.

Globalisation and Education

This Joint Workshop explores at the impact and manifestations of globalisation in the field of education, which would have to be considered from the viewpoint of primary education, secondary education, vocational education, higher education and professional education.

The area of primary education lies essentially within the purview of individual nations and governments. This would cover the ability to read and write, a basic understanding of fundamental mathematical notions and a freedom to explore the scientific method that would enable finding possible answers to questions.

Though this is an area which has not been significantly affected by globalisation, there are some indirect impacts on this sector. For the bulk of society this is an area which has to be catered to by governments; this necessitates public resources. In the scenario of a rapidly developing market economy, governments have less access to resources; this is impinging on the scale as well as quality of education. The upper stratum of society is, therefore, increasingly taking recourse to private schools, which have resources and facilities, and thereby a quality of education that is in total contrast to the lack of these in the public schools. Private schools try to harmonise their levels to those that obtain at the best places elsewhere in the world. Those who have the wherewithal educate their children in such schools to prepare them for higher education that would be commensurate with the opportunities in the globalised world. This leads to a quality divide and an opportunity divide.

At the next level of education, which is secondary education, these inequalities widen considerably. Instead of education being a enjoyable process of learning, the children are pressurised into a pattern of obtaining certificates, higher levels of marks and into choosing subject areas that would give them the best opportunities for the next higher levels of education and their employment. At all levels in schools, the teaching and learning is directed towards the areas of future employment, particularly those that would result in higher emoluments. Such opportunities and emoluments arise significantly in areas of business, industry, particularly in service sectors, in finance and management. Regarded by society as the most desirable, it is towards these areas that the children gravitate; and subjects and courses that would enable this are at a premium. This constitutes a distortion of what should constitute a true educational process – in all of this value systems are given the go-by.

The area of vocational education is significantly the responsibility of nations and their governments. In spite of the fact that very large numbers of those with professional skills at the levels as imparted by vocational education are needed by society, there is a tendency for these areas to be looked down upon particularly in developing countries. It is often felt that only those who have been unsuccessful in getting into the profitable areas in higher education are the ones who opt for the stream of vocational education. There is, thus, a shortage of plumbers, electricians, various categories of mechanics, nurses, medical technicians and the like. Responsibility for this must lie with a highly skewed employment, salary and reward pattern, as also social value systems.

Higher education, including professional education, is still essentially within the purview of individual countries and in terms of numbers involved, the majority are financed by public resources. However, this is a sector that has been affected significantly by globalisation, with a great deal of privatisation and commercialisation making an impact.

The new globalised economy calls for specialized professionals. This has meant that instead of the old-fashioned broad-based university system, increasingly the tendency today is for universities to specialize in engineering, medicine, agriculture, management, law, and the like. Undoubtedly, the output from these institutions is of the highest quality in terms of narrow professionalisation and technical capabilities. However, the broader thinking individual, with developed value systems and well-honed civilisational qualities, as also a breadth in creative thinking, would still have to emerge from the old-fashioned liberal education. 'Renaissance Man'; 'a man for all seasons'; 'a polymath' were terms earlier used for individuals who were visionaries spanning multiple areas in creative thinking, in the arts, sciences, humanities, as well as in their own professional areas. Very few of this type will now emerge since the finest inputs are moving into narrower professional areas.

A large part of higher education and professional education is rapidly developing on commercial lines, as outputs from specific well-defined professional areas of such education find well-paying employment opportunities for which there is a huge, and growing, demand. This commercialization has particularly benefited from the fact that most traditional university systems, largely public and poorly financed, have tended to be complacent and resistant to change. This has caused some of the best members of the staff of traditional universities to move to commercial and professional areas in education that are available to them.

Except for determined individuals who choose subject areas of their choice, and pursue research in areas of their own interest, the vast majority, including the super-bright, are being pushed into a commercialised education system, which is turning out to be a process for generation of technical experts. The demands relate to professional competence and intelligence - all channelled towards the acquisition of power and wealth; knowledge is being regarded as a means towards this rather than as a product of scholarship in its own right. Education is being reduced to becoming as much of a product as anything else in the market place. In an earlier age, education was regarded as sacred; its purpose was to bring out the finest qualities and capabilities intrinsic to a human being.

It is abundantly clear that globalisation is making the most significant impact on higher education and professional education. In many ways, it is shaping priorities in defining subject areas and disciplines that are regarded as important, being related to employment opportunities and emoluments offered. It is also beginning to shape the research agenda in favour of areas and subjects that would have high value because of intellectual property rights, and would be relevant for activities that can lead to commercialisation. Scientific research, as conducted in academic institutions, is becoming increasingly more secretive because of confidentiality agreements with sponsors, and the fear of disclosing information that would be patentable. The transparency and openness characteristic of science is giving way to new requirements that could well affect the very conduct and further development of science. In many cases, one can also see a change taking place in the collegial pattern of academic institutions. There are several areas of activity where teachers merely wish to have secure academic positions for the access that this would provide them to a hardworking student population, which is most important for new ideas; but they also wish to minimise their teaching responsibilities, and are constantly on the lookout for well-paid consultancy jobs with earnings that are way above what their other colleagues might expect in other less-favoured disciplines.

Much of the above relate to the negative aspects of globalisation, arising from the commercialisation that is taking place in society as a whole, which is bound to have its impact on education. It is also important to consider what may be learnt from the manner in which business and industry functions, which would be of benefit to education. First, we must recognise that the present educational system has deteriorated into complacency. Teaching methods, curricula, disciplines and departments continue to be singularly devoid of innovation. Lessons may well be learnt from the man-

ner in which business and industry continue to produce new products to replace the old, in terms of performance, quality, and the like; and also develop new organizational approaches and pattern of functioning that are effective in the new competitive world. One cannot also bank on security and tenure, as academics or government servants tend to do; in the economic field employment and payments relate entirely to performance.

A further feature of business and industry is cost consciousness. It is time that academics awake to the realities of the world around, and deliver the maximum output at the minimum cost. While it is not required that market principles should be applied to education, work urgently needs to be carried out by educationists themselves, on methods of assessing cost effectiveness and monitoring it. The education system is in need of innovative change to be relevant to the unfolding scenario resulting from globalization.

I began with the premise that we should view globalisation from the perspective of deriving the maximum benefits for society as a whole. Having analysed the driving forces that have led to globalisation, the nature of the process and its impact on various sectors in the functioning of society, I would like to conclude on a positive note.

A powerful driving force of globalisation has been Information Technology. It can, and should, play a powerful role in education. We are witness to a very large number of IT related experiments in education that relate to: aspects of distance learning – virtual classrooms and universities; IT approaches to removal of illiteracy and in self-learning processes, etc. The problems foreseen in education are: of scale – how does one deal with such large numbers; of access to the world of knowledge; of ensuring that the best education is available to anyone who desires to have it; and finally of costs. Modern information technology has the power to yield positive answers to each of these issues.

It is possible through current technology to encapsulate the finest courses on any subject by great teachers, and to make these widely available in a direct, interactive distance mode, as well as in the form of video discs and such like, to reach very large numbers. This may be done at a relatively low cost. The expenditures involved are in the early priming stages, and not in the large-scale multiplication and dissemination. There are many experiments to prove that the basic techniques in information technology can be easily taught; in many cases, there can be self-learning processes. Once this is available, as also low-cost computing systems, it will be possible for the individual to use the internet and access the web. All of these are now becoming increasingly user-friendly. Once an individual

develops this capability it then becomes possible to access the world of knowledge; in many cases this can be done in real time.

Efforts are being made at the moment to create universal digital libraries which cannot only hold the printed word, but also material in other forms that need to be accessed, as for example, voice, video, etc. An inter-lingua approach to move effortlessly from one natural language to any other natural language is also being developed. Whilst these efforts at the moment relate to written language, the advances taking place in information technology should make it possible to carry these out with spoken languages. Though such movement from one natural language to another cannot easily deal with complicated aspects such as concepts, semantics, and poetry, it can do a great deal to ensure that existing languages, and the modes of thinking and culture that they represent, do not have to necessarily die out to be replaced by one or a few languages that everyone would have to master leading to a monolithic culture.

It must be recognised that the process of education cannot be converted to a mechanical process. The teacher will always play a very primary role in education, not so much to convey a mass of information or of techniques used for solution of problems, but more as a person who can bring out the intrinsic capabilities of the individual being taught. There is a human interaction between the teacher and the taught which brings out the fullest capabilities of the latter.

We need to utilise the powers and capabilities that have powered the forces of globalisation to further societal interests such as the preservation of culture, language and traditions, making it increasingly simple and inexpensive to relate to global as well as local knowledge systems, as also an understanding of motivational and cognitive forces to ensure that education prepares the ground for the development of better human beings, and a better society. The importance of value systems that make a good human being cannot be over-emphasised. It should be possible to ensure that the knowledge revolution that has propelled globalisation will lead to a new civilisational adventure in which the tested age-old value systems provide the direction and the powers of science and technology the motive force.

**THE ROLE OF COMMUNICATION
AND INFORMATION TECHNOLOGIES**

THE GRAND NARRATIVE TOLD BY THE SCIENCES

MICHEL SERRES

For a few decades now, all scientific disciplines have been able to date their objects. Cosmic radiation shines throughout, in memory of the Big Bang; thanks to radioactivity, geophysics dates the birth of the Earth and palaeontology that of fossils; the Burgess Shale teaches us that animals did not have hard body parts before the Cambrian age; by carotting ice in Greenland, we can even determine the year in which certain climates, techniques or diseases appeared.

Astrophysics teaches us that this Big Bang took place fourteen billion years ago; Earth physics dates the achievement of its definitive form, by accretion, to 4.7 billion years ago; from biochemistry we learn that the first living molecules, capable of duplicating themselves, began invading the planet 3.8 billion years ago; natural history lists the emergence of each species, with pluricellular organisms succeeding eukaryotes and the latter succeeding prokaryotes; sometimes it can enable us to know the hour in which they disappeared; volcanic eruptions or the impact of aerolites, five huge catastrophes marked the evolution of living beings by a few quasi-eradications; about seven million years ago, a species close to us, and yet still distant, rose on the shores of Lake Chad, another, later one, in the Kenyan Rift; a handful of these men left their cradle in the African continent, *Homo erectus* before *Homo sapiens*; the latter left one hundred thousand years ago and very rapidly colonised the face of the Earth; Australia, sixty thousand years ago and, via Beringia, the American continent, undoubtedly thirteen or twenty thousand years ago.

Over the space of a few decades, multiple discoveries linked all disciplines in a common gesture of chronometry. Subject to amendment depending on the advances of research, these dates, properly picked out, succeed one another, forming a Grand Narrative of which the shoots and branches will quickly become the temporal horizon for the future genera-

tions, their tradition, their shared heritage, without cultural distinctions. Now, this Grand Narrative of our Universe, of our World and of our Humanity has a trunk and some branches, the shape and ramifications of which replace the circle of the old encyclopaedias. Anyone can tell at leisure to his children, in five minutes or in an hour; the story of the first explosion, Planck's barrier, the subsequent cooling, the arrival of water on a certain planet, fragile and blue, the evolutionary passage from single cell organism to more complex living beings, soft-bodied at first and hard-bodied later, the flourishing of plant and animal species from branch to branch, the emergence of several human varieties which coexisted for a long time, a biped's loss of fur whose metamorphoses concern us, the invention of fire... an exciting scenario, dotted with unforeseeable and contingent dramatic turns of events... where science, on its own and without translation, seems to leave the realm of calculations and equations to become literature; together, the various disciplines tell the huge adventure of the objects they deal with; finally, the technical languages of all sciences, as simple but as difficult as those of mathematics, converge towards an everyday, vernacular language which is accessible to everyone. The whole of what was once called Encyclopaedia thus carries into this complex narrative, whose tale may be made up of a few words told by a mother to her child one night in front of the fire or contained in several million CD-Roms, which only the specialists can decipher. The further we advance in science, the further away we move from the elementary enunciation of this canonical and extremely simple Narrative.

What shall we thus call the entire breadth of scientific knowledge? The answer is: the Grand Narrative. Can I get acquainted with it? Of course: I have just told it in a nutshell. It synthesises all that science invents and explains. Like tributaries, all the disciplines flow into this river and feed it incessantly. The Grand Narrative groups and synthesises them. Paradoxically, we can know everything, all we need is to tell the Grand Narrative.

The Cultural Mosaic

However, nothing in this long epic will console or protect us from misunderstanding one another because we do not speak the same language, from hating one another because we do not practice the same religion, from exploiting one another because those who do not live at the same economic level lack defences, from persecuting one another because we

do not have the same form of government... and nothing prevents us from murdering one another for all these reasons. Worse still, the old humanism did not spare us from the daily violence in history, the slaughter of Gauls, of the Native Americans, of the Catars or of the aborigines, nor from Auschwitz or Hiroshima. Sciences do not give meaning; only cultures give meaning.

We writers or researchers, sometimes humanists, do not have available, and very happily so, political power, or armed forces, or money. We would not make better use of them than anyone else. How few of the so-called cultured men know that the real, universal culture is the one that prevents a cultured man from crushing anyone under the weight of his culture? Thus we have nothing available except language and, at times, *teaching*. We have no choice but to work in the long term. Precisely the time frame of the Grand Narrative. Therefore how should we reply, with our specific means, to these sorrowful questions, which are reiterated everyday by the problem of evil and leave us disconsolate? How can we work towards peace, which is the greatest of all collective goods? How can we invent a new culture? Not by thinking about it, speaking about it or holding meetings which are always useless but by really contributing to it? I suggest a specific action, again derived from the Grand Narrative. Here it is.

Appeal to the Universities of the Entire World for a Common Knowledge

A common pedagogical trunk, which would unite little by little all of mankind, starting with students, would pave the way for the progress of peace.

I ask the presidents of the Universities of the entire world to devote the first year of teaching to a common programme, which would enable students of all disciplines and all countries to have the same background in knowledge and culture; they, in turn, would disseminate it.

I am suggesting to them only a general framework which they could mould according to their specialisation, culture and goodwill. It is inspired by the following considerations:

- 1) Being universal, hard sciences can be taught according to the Grand Narrative.
- 2) With respect to cultures, they form a highly diversified mosaic, inspired by languages, religions and politics. Pedagogy assimilates this body of differences.

Common Programme for the First Year of the Universities

1) The unified grand narrative of all the sciences

Elements of physics and astrophysics: *the formation of the Universe, from the Big Bang to the cooling of the planets.*

Elements of geophysics, chemistry and biology: *from the birth of the Earth to the appearance of life and the evolution of the species.*

Elements of general anthropology: *emergence, spread and prehistory of the human genus.*

Elements of agronomy, medicine and transition to culture: *the relationship between man and the Earth, Life and Humanity itself.*

2) The mosaic of human cultures

Elements of general linguistics: *geography and history of the language families. Communication languages and their evolution.*

Elements of the history of religion: *polytheism, monotheism, pantheism, atheism...*

Elements of political sciences: *the various kinds of government.*
Elements of economics: *the sharing of resources throughout the world.*

Masterpieces chosen from the wisdom of the world and of the arts: literature, music, painting, sculpture, architecture... *Sites*: world heritage sites according to UNESCO.

NEWS, GLOBAL COMMUNICATION TECHNOLOGIES AND EDUCATION

MORTIMER ZUCKERMAN

Good afternoon, my comments will go in a very different direction, dealing with public knowledge as conveyed by the media in the form of facts, analysis and opinions, all with the idea you might say, of educating the public by adding to their inventory of public knowledge. Why is this important? Because obviously a viable democracy requires a public that can be trusted to act knowledgeably and thus wisely. This is of great concern in America which actually began with an attitude of scepticism of trusting the people despite the opening phrase in one of our founding documents, that is, 'we the people'. Many believed then and believe today that the people lack key ingredients, such as education and information or the sensitivity necessary to become an informed public. In journalism, this is translated to what one media sociologist called the trustee model. Journalistic professionals decided what the citizenry should know and what they would teach in their role of public educators. They would be the ones to speak truth to power without concern for where the cards may fall or whom it may embarrass or even how few readers pay attention.

In this sense the citizenry, preoccupied and distracted as it is, entrusted a measure of their individual sovereignty to journalists. But whatever trust we journalists assume we have been granted from a distracted public is clearly eroding. For the press to be a representative of the public requires that the public believe that the press is its authentic representative in a fiduciary relationship with it and not in cahoots with the state or powerful interest groups, but one that is capable of rendering an unbiased factual account of the world, independent of their own political ideology. In this respect, the press has been found wanting. They have lost credibility and respect and are no longer believed but are distrusted by much of the public: (a) because of their perceived bias; and (b) because the world recognis-

es that the role of the press is that of an observer and many in the press have never been involved in trying to manage the real world, or as they say, writing about being kicked by a mule is different from being kicked by a mule. What the public feels is that journalists are convinced that they know how the world ought to work and on this, they take second place to no-one. So their own political values penetrate their reporting as a political ideology and that is why the public, certainly in America, often sees journalists as a hindrance to rather than as an avenue to political understanding with only about 40% trusting the press.

There is a factual basis however to the concern in the press about what the public knows. An impressive amount of research demonstrates how little individuals know about anything political from the names of officials at every level of government including their own local government to how the government works or what issues are all about. Indeed, the most elementary political facts are unknown by the public at large. Public knowledge then is in short supply. The great American educator John Dewey once described the ideal world where the ordinary people and the experts interact and work together to create knowledge that neither possesses alone, or as he put it, the one whose foot is pinched by the shoe should work with the cobbler who knows shoe repair. Dewey rejected the idea that technical knowledge or any other form of expertise trumps the experience-based knowledge of ordinary people. But if public knowledge is defined as a knowledge that helps the public resolve public issues, it is clearly necessary to make elite knowledge more accessible to ordinary citizens. The cobbler's knowledge must be put more immediately at the disposal of the person pinched by the shoe, not to speak of the fact that we must have the means by which the public can learn more directly from the pinched person. It is not enough that people get involved periodically in national elections. We must seek a way to democratise public education and public knowledge. This means giving citizens daily access to the most reliable and democratic means of knowing, in other words, a system for citizens, scholars and practitioners to think and talk together in daily explanations of what is happening in the world.

This will take me into the evolution of the media made possible by changing technology. For literally many many years and decades, even centuries, newspapers have had a great run. I speak to you as a publisher of a major metropolitan newspaper but humbled by the comment of the great American writer, Mark Twain, who once wrote, 'How often we recall with regret that Napoleon once shot at a magazine editor, missed him and killed

the publisher. But, we remember with charity that his intentions were good'. Now, the Daily News which is the newspaper I publish in New York, at the end of World War II, had a Sunday circulation of 4.2 million and a daily circulation of 2.4 million, and it was one of thirteen major newspapers in New York City. Today, under the influence of both radio and TV which have been whittling away market share, there are only three newspapers in New York City, and the Daily News which is still the largest has a daily circulation of 715,000 and a Sunday circulation of 815,000, a dramatic reduction of almost two-thirds. Now, this is undoubtedly going to continue because the next generation of people accessing news and information have a different set of expectations about the kinds of news they will get, when they will get it and how it works for them. Here are some statistics, in general. In 1964 four out of five Americans read a newspaper regularly, in 2004 only 50% of Americans did so. Amongst the younger readers who are the most valuable advertising demographics of 18-34 year olds, only 19% turned to a newspaper on a daily basis compared to 44% who rely on the web for news. The future course of news is being dominated by technology, savvy young people who are no longer wedded to traditional news outlets or even accessing news in traditional ways. Internet portals are becoming their favourite destinations for news. They do not want to rely on the morning newspapers for up-to-date information, they want news on demand, when it works for them, how it works for them, and they want to be able to control where they get it and who they get it from. The attitudes of the young towards newspapers are very distressing. Only 9% describe newspapers as trustworthy, 8% find them useful and only 4% think that we are entertaining according to the Pew Research Center. It is not that they do not want news as much as their predecessors, they want a lot of it, just faster, of a different kind, delivered in a different way, particularly in ways that enable them to enjoy their gadgets and technology.

When TV emerged, that became the dominant news media but that world too has become a free for all. Network broadcasters now have to battle the cable chattering classes. In the United States, CBS, NBC and ABC have lost 50% of their audience and the median age of their viewership is 60. Once upon a time, when television broadcasting first hit its stride with Walter Cronkite on CBS and his counterparts on ABC and NBC, their assessment of what constituted news and of how to present it in a fair and balanced way was quite similar. But the era of choice began for viewers in 1980 when CNN and its all day newscast arrived on the scene. Then more cable news stations joined the fray, expanding choices and more and more

people lost confidence in the major news outlets. Only 44% of Americans say they are very or fairly confident of the major media's accuracy. Republicans question media credibility much more than Democrats do, believing that the major national media were dominated by Liberals.

Many have given up on the mainstream media and they are segregating themselves into news media, especially cable news networks like Fox and CNN that reinforce what they already believe. People now see the news they want to see and hear the news they wish to hear. And it is true that the T.V. news pictures themselves have limitations. Back in 1986, I was a part of a delegation sent to monitor the election in the Philippines. We were twenty people, we broke up into ten groups of two each and drove around the Philippines or flew around the Philippines for the day before the election and the day of the election looking for violence, we could not see it. When at the end of the day we all got together at the Embassy, we all agreed that we had not been able to find any violence and when we went to our various residences that night and called back to the United States, everyone of us experienced the sensation from the people on the other side of the phone whose belief it was that the Philippines were in flames and they were concerned about our safety. Why? Because television put together the ten and twenty second pictures of the 92 precincts out of 91,000 where there was some modest degree of violence. They showed that violence as a dramatic picture and that was what was conveyed in the way of the news about the Philippines indicating how television could distort the presentation of the news.

Back to cable. Today many find it difficult to draw a distinction between news and talk shows. In effect opinions are masquerading as journalism with news coming out with a political bent. The result is a fragmentation of the mass audience in America which is a huge cultural story in America. As public life has become more fragmented and divided, people have mobilised around smaller special interests and distance themselves from the search for the common good. Fragmentation of news sources and its political colouration raises concern that much of what holds the nation together will continue to dissolve with the mass media no longer able to provide a kind of cultural glue.

Now, we have the emergence however of a major new phenomenon which is the real purpose of this talk, to wit the blogosphere which is turning America's media diet into an all day media buffet. Blogs essentially are personal web journals that increase the ability of people to share ideas and information immediately and on a worldwide basis. Web blogs allow mil-

lions of people to easily publish their ideas and millions more to comment on them. They are a fluent and dynamic medium, varying from the recitation of individual opinions and analysis to the aggregators that essentially point readers to other blogs, websites and other sources. The estimates are that there are roughly eight to ten million blogs in the United States up from only 50 in 1999, and we are creating an estimated 100,000 new blogs every day. 27% of the internet users in the USA say they read blogs.

The blogs have now developed into a food chain of information. At the top there are the power blogs, the relatively small, elitist, well-known and highly influential sites that can attract hundreds of thousands of readers everyday, they account for the overwhelming share of all page views and hits. These are not just personal journals, they also report news, provide interpretation and commentary and in many ways confront and upstage the mainstream media. Then there is a secondary group of social network blogs which often follow certain specific topics or specific regions. At the bottom of the food chain of blogs, there is a vast galaxy of obscure blogs that often get only a few hits a day but are increasingly the source of news, where a trend or event is first noticed by a lesser known blog, amplified by a social network blog until it comes to the attention of a power blog and then often enters the mainstream mass media. This is the new age of journalism.

Media futurists have predicted that in fifteen years, citizens themselves on their blogs will produce 50% of the news for these new forms are relatively inexpensive, easy to use, to set up and to maintain. They are unedited, unfiltered and have an alternative credibility to official pronouncement and to the traditional mainstream media as they collect and organise fresh insights and opinions. Some may include links to other blogs and websites providing readers with a quick easy means of pursuing additional information. They also have the capacity to swarm, that is, to focus on a subject by sharing and spreading information quickly. This is a part of a process that we are now experiencing for their numbers are huge and they foster both knowledge and information sharing to an extraordinary degree. And they have an unusual advantage. If you look at Google and other services that do share these presentations, they operate with impunity towards government sanctions, for they are protected from any liability posted on the blogs they host. This raises the danger that the combination of massive reach and legal invulnerability make character assassination and distortion of the issues easy to carry out.

Nevertheless, there we are, millions of on-line diarists are bloggers, share their opinions with the global audience, incorporate the contents of

the international media and the worldwide web into an elaborate network that has the capacity to set agendas on issues ranging from human rights in China to the US occupation of Iraq. The global has become the local, the external has become the internal as the internet makes it possible to keep up with events beyond the immediate environment. This is a new medium that is changing the landscape for journalists and policy makers alike. Now, what we have to do is to find a way to translate expert knowledge for the non-experts and these new technologies offer this opportunity, especially websites that are increasingly devoted not only to what is really happening and what we can do about it but one in which news and information generated by the news media is supplemented with content supplied by citizens, community activists and educators. I will give you an example. The Alaska national wildlife preserve and whether or not oil drilling should take place there. On various websites you can get all the relevant documents and statements from governmental, corporate and environmental bodies. There are contributions about abatement, risks and costs from specialists. Other Alaskans have shared their experience with oil drilling on the North Slope and their hopes and concerns for the State's economy as well as for the environment. Then individuals are in a position to read the various trade-offs that are assessed among the desired objectives. This is a new kind of journalism which would not simply interrogate officials but would also ask citizens about their concerns and experiences, and turn to other sources of expert knowledge to expand the ability of the public to assess a wider range of policy options, in effect a dramatic expansion in the ability to educate the public about public issues. This is not the trustee model of journalism. It recognises that citizens are the keepers of important knowledge, that combined with expert knowledge can create a public knowledge that makes it possible for the people to act as a much more informed public. This is a public knowledge that is more interactive, more collaborative, more reflective and more engaged at the local level. Even now the voices of a whole range of citizens are being heard loud and clear through web blogs. It is a shift from the mainstream media to the self-publisher.

Here are some examples of how they have set the agenda. In the Spring of 2004, a citizen took digital photos of US soldiers in flag-draped caskets being loaded on a plane in Iraq, and another blog displayed dozens of similar photos. Contrary to the government restrictions on these photos, these photos were soon in every major newspaper based on citizen action or public journalists. Then there is the story of Salam Pax, the so-called Baghdad

blogger, a 29 year-old architect whose on-line diary about life in Iraq in wartime transformed him into a cult figure, his readership grew to millions and his accounts were quoted in all the major media. So, if the First Gulf War introduced the world to the CNN effect, the Second Gulf War was the coming out party for blogging. They provide on-line commentary with minimal or no external editing, through postings where individual entries of news and commentary by journalists and non-journalists who wrote about what they were thinking in real time around the clock. This means people can actually write an opinion and refer something to something through a hyperlink that joins them up with many other sources of content.

They are already influencing US politics. The five top political blogs together attract almost a million visitors a day. Look at the story of Trent Lott, the US Senate majority leader who found out about this when he was forced to resign in the wake of inflammatory comments he made at Senator Strom Thurmond's hundredth birthday party. His remarks received little attention in the mainstream media, but was the subject of intense on-line commentary that ultimately converted his gaff into a full-blown scandal on the mainstream media and forced his resignation. The blogs are basically a real time collective response to breaking news. It is a virtual public opinion barometer. They often focus on something new, neglected and have ignited national debates on such topics as racial profiling at airports, a scandal involving the exposure of a CIA agent's identity, bribery allegations at the UN, and an informed commentary such as what went on in Iraq. There is a very interesting story about the time when there was a report of 170,000 priceless antiques and treasures that had been ostensibly looted from the Iraqi National Museum in Baghdad in April of 2003. It created a firestorm of attacks on the US Defence Department for failing to protect these treasures, an art historian named David Nishimura who was there, who knew about it, concluded that the 170,000 number was a total exaggeration, that the actual losses of serious were dramatically smaller and that Museum officials played the largest role in the looting. In any event the blogs have become a fifth estate, they watch over the mainstream media. They often compel them to correct errors in their own reporting as you may have seen when Dan Rather's famous acknowledgement that he could not authenticate documents he had used in a story about President George Bush's national guard service, that bloggers had identified as forgeries.

It is important to note they are particularly useful in countries where there are few other outlets for political expression, for they are an alterna-

tive source of news and commentary where the traditional media are under the thumb of the state. That is why they may be the most explosive outbreak in the information world since the internet itself, capable of serving as an information sharing collaborative process and providing a heat map about what a growing part of the world is thinking about minute by minute. So, we are literally at the end of the old ways of telling the public the news of the day. This is going to be the new platform for public education and public knowledge. Thank you.

NO ONE LEFT BEHIND TECHNOLOGY AND LIFELONG MASS LEARNING

RAJENDRA S. PAWAR, MANAS CHAKRABARTI and SUGATA MITRA

Introduction

NIIT Limited was started in 1982 with the mission of 'bringing people and computers together ... successfully'. From the early days when NIIT pioneered training in information technology in India, the identity of the company has been built on continuous innovation. This presentation briefly describes the path taken by NIIT to reach millions of learners worldwide. It also presents a potential solution for bridging the digital divide.

The digital divide is not merely an issue of access to digital technology. As the trend toward globalization becomes irreversible and the world moves closer to being a knowledge-based economy, the digital divide can have a devastating effect on entire populations, affecting livelihood, education and healthcare. It is a problem that can no longer be ignored.

WAVES OF CHANGE

NIIT's journey through the years can be best described as a series of disruptive changes that challenged existing assumptions:

The First Wave (1982 – 1986): Initiation

At a time when the use of computers in India was largely restricted to select research laboratories, NIIT predicted that information technology (IT) would play a critical role in the growth of the Indian economy. And a very large number of trained IT professionals will be needed to fuel that growth. In this phase, NIIT set up the first IT education centers in India,

delivering instruction on cutting-edge technologies. Even in this early phase, the company experimented with many new delivery technologies to increase the efficiency of the learning process. These technologies included video-aided instruction, computer-aided instruction and distance learning.

The Second Wave (1986 – 1999): Proliferation

Not only did NIIT catalyze the IT revolution in India, it also created the first generation of IT training entrepreneurs. To reach the millions of students in small towns across the country, NIIT set up its franchise operations. In this phase the number of education centers exploded, reaching thousands of towns. With this massive scaling up of education delivery, NIIT faced the challenges of quality, consistency and cost. The company met these challenges using the tool that it knew best – information technology. From a fully-automated student management system to the first virtual university on the Internet, this was a period of unprecedented creative energy. This was also the period in which NIIT set up the largest content development facility in the world.

The Third Wave (1999 – 2005): NIIT Inside

Having reached enrollment figures of hundreds of thousands of students, the next challenge was to break the million-student barrier. To do this, NIIT expanded its reach into rural India, providing computer education in village schools. On any given day, NIIT teaches about 1.5 million students in these remote schools, some of which do not even have a telephone.

NEED FOR NON-LINEARITY

When we look at the rapidly increasing reach of NIIT, from tens of students to a million students, it does look like a significant achievement. However, if we were to look at the context from the outside in, it is clear that the existing methods of education are largely inadequate. A linear, incremental approach to education will not help us reach the estimated 227 million children who live in poverty. Nor will such methods work to reach the estimated 122 million children who are out of school.

Existing methods of education are not scalable because they are constrained by the availability of trained teachers. By some estimates, the

number of teachers in developing countries has to increase by 20% every year to reach a student-teacher ratio of 40:1 by 2010.¹ This rate of teacher training and deployment is improbable. The situation is further exacerbated by low learning outcomes in school. A recent survey in India shows that 51.9% of children aged 7-14 cannot read grade 2 texts and about 65.5% of these children cannot perform simple arithmetic operations.²

With the cost of teachers and infrastructure increasing exponentially, and with a simultaneous decrease of computing and communication costs, it is now viable to use information and communication technologies (ICTs) to reach the unreached. At the same time, these new technologies have to be more effective and efficient than existing methods of education to have widespread adoption.

The Fourth Wave (1999 – 2005): Beyond the Classroom

It was with this goal in mind – that of massively scalable, efficient and effective education – that NIIT started the experiments of Minimally Invasive Education. In this new pedagogy, groups of children interact with a computer installed in an outdoor playground in ways that are very different from classroom behavior.

The early experiments in 1999 showed that groups of children, with no prior exposure to computers, could acquire functional computer literacy with no adult intervention. A three-year national research project covering eight Indian states proved the hypothesis that, 'If given appropriate access and connectivity, groups of children can learn to use computers and the Internet with none or minimal intervention from adults'. The results showed that these children could acquire such skills irrespective of gender, socio-economic background, language, culture and ethnicity.

Minimally Invasive Education requires that computers be placed in outdoor, playground settings. This creates significant engineering challenges in ensuring that computers work in harsh outdoor environments without supervision and with minimal maintenance effort. The researchers at NIIT's Center for Research in Cognitive Systems, have created several patented innovations to overcome these challenges. These include tamper-proofing hardware and software, remote monitoring systems and designs for outdoor tropical kiosks.

¹ Education for All Global Monitoring Report 2006.

² Annual Status of Education Report for Rural India 2005.

It is now widely accepted that Minimally Invasive Education is a viable solution for bridging the digital divide. But the researchers were intrigued by some results that showed that children were not only acquiring functional computer literacy, but also improving their skills in reading and mathematics. This was corroborated by teachers who went on record to say that children's concentration, attention and ability to understand instructions improved significantly after being exposed to playground computers. This resulted in several studies being initiated to measure the impact of Minimally Invasive education on academic performance and metacognitive skills. The early indications from these studies show that Minimally Invasive Education might have benefits far beyond computer literacy.

Conclusion and Future Direction

We conclude that groups of children can learn to use computers on their own, irrespective of who or where they are. This will happen if computers are provided to them in safe, public locations.

This method of acquisition of computer literacy does not depend on the existence of schools or teachers. It is also considerably less expensive than traditional methods of computer education. Therefore, in those circumstances where schools and teachers are absent, playground computers are an adequate substitute. Places affected by natural disasters, such as the recent Tsunami in the Indian Ocean, or places affected by war, such as Afghanistan or Iraq, or places affected by economic or social problems such as poverty or HIV/AIDS in Africa are likely to benefit quickly and reliably through such self-learning methods.

While this paper is about the acquisition of computer literacy, there are indications that playground computers produce other changes in children's social and educational achievements.

NIIT believes that Minimally Invasive Education using playground computers is a pedagogy that turns the classroom inside out, changing the efficiency, attitudes, and economics of the education system. It is a solution that can potentially bridge the digital divide on a global scale.

Current work at NIIT is focused on two critical issues related to Minimally Invasive Education.

- There is an intense research focus on identifying the factors that influence outcome and to create a theoretical framework for analysis;

– Significant development effort is being made on creating hardware and software solutions to overcome infrastructure challenges, such as power and connectivity.

Also, before a solution can be adopted for large-scale implementation, there is a need to establish scaled pilots of 5,000 to 10,000 units that will create critical mass. NIIT is exploring ways in which such scaled pilots could be funded and deployed.

THE EFFECTS OF GLOBALIZATION ON EDUCATION

EDUCATION IN A GLOBALIZED WORLD*

DAVID E. BLOOM

INTRODUCTION

The State of the World's Education

Fifteen years ago, delegates from 155 countries met in Jomtien, Thailand and agreed on a framework for action to implement the World Declaration on Education for All. The framework was not a pledge, but it stated that in setting targets for the coming years, countries might wish to aim for universal completion of primary education by 2000.¹

Respectable educational advances were made in the 1990s, but it was clear by 2000 that the goal of universal primary education was far from being achieved. The international community therefore acted to reinvigorate movement toward this goal by including the universal completion of primary education by 2015 among the United Nations Millennium Development Goals (MDGs). The MDGs also called for the elimination of 'gender disparity in primary and secondary education preferably by 2005,

* This paper has been prepared for presentation at a workshop on 'Education and Globalization', sponsored jointly by the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences, 16-17 November 2005, The Vatican. I extend my appreciation and thanks to Joel Cohen and to Henry Rosovsky for their extensive collaboration on much of the work described herein. I also thank participants in the American Academy of Arts and Sciences' Project on UBASE (Universal Basic and Secondary Education) for helping to inform and shape my views on many of the matters discussed herein. Emily Hannum, George Ingram, Dean Jamison, Martin Malin, David Post, Fernando Reimers, and Annababette Wils provided very useful comments and suggestions. In addition, I thank Larry Rosenberg and Mark Weston for their assistance in the preparation of this paper.

¹ http://www.unesco.org/education/efa/ed_for_all/background/07Bpubl.shtml

and at all levels by 2015'. All 191 members of the United Nations have pledged to meet these goals.

Today, as in the past, there are good, bad, and ugly parts to the story of how the world is faring in its effort to improve educational access and quality.² The good news is that the world has made progress in moving toward the MDG on primary education. Two developing regions – Latin America and the Caribbean (which is very close to the goal), and the Middle East and North Africa – have made enough progress that they are on track to achieve that goal by 2015. The East Asia and the Pacific region has reached a very high completion level, though it would not quite reach 100% by 2015 at its current rate of improvement.³

The bad news is that it is becoming increasingly apparent that many countries will not meet the 2015 target. Progress is slow in Europe and Central Asia; and in Sub-Saharan Africa, it is both slow and starts from a low point. Neither region is on track to meet this MDG by 2015. South Asia is ahead of Sub-Saharan Africa but it, too, will not reach the goal without a near-term, major increase in the rate at which this indicator is improving.⁴ A careful new study by the Education Policy and Data Center⁵ shows the historical trends for universal primary entry and universal primary completion for 70 developing countries. Very few will make the Millennium Development Goal of primary school completion, although some are improving rapidly and will come close to the goal within the decade. But at current rates of improvement, most will reach 90% primary completion some time after 2020 and, in many cases, not for decades after that. Another way of looking at this issue is to note that even if education continues to expand at the pace it did between 1990 and 2000, an estimated 118 million primary-school-age children – 16 per cent of the primary-school-age population – will not be enrolled in school in 2015.⁶ Along these same

² A review of many of the basic and secondary education issues discussed in this paper is Joel Cohen and David E. Bloom (2005), 'Cultivating Minds', *Finance and Development* (42)2, June, pp. 9-14.

³ <http://ddp-ext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&goalId=6&targetId=17&menuId=LNAV01GOAL2SUB1>

⁴ <http://ddp-ext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&goalId=6&targetId=17&menuId=LNAV01GOAL2SUB1>

⁵ Annababette Wils, Bidemi Carrol, and Karima Barrow, *Educating the World's Children: Patterns of Growth and Inequality*, Washington, Education Policy and Data Center, 2005.

⁶ David E. Bloom (2005), 'Global Education: facts and data for measuring progress', Working Paper of the Project on Universal Basic and Secondary Education, October (Cambridge, MA, American Academy of Arts and Sciences).

lines, a new UNESCO study also provides a sobering conclusion about the likelihood of the world achieving the goals of Education for All (now incorporated into the MDGs).^{7,8}

Secondary and tertiary education, moreover, have been noticeably absent from global education initiatives, despite growing recognition of their economic and social importance. Rising numbers of primary school graduates, coupled with rising income, have led to increased demand for secondary education. An estimated 217 million children of secondary-school age are projected to be missing from secondary school in 2015. This equates to 30 per cent of the relevant age group (12-17) worldwide.⁹ In developing countries, only around half of the age group are enrolled in school,¹⁰ and gender disparities in some areas are vast: 52 per cent of South Asian boys, for example, are enrolled at secondary level, compared to just 33 per cent of girls.¹¹

Test scores, too, are low in developing countries, strongly suggesting that educational quality is low. Although relatively few such countries participate in international comparisons of capabilities in reading, math, or science, those that do have mostly fared poorly. An exception is the countries of Eastern Europe and the former Soviet Union, whose performance is mixed. In Eastern Europe, test scores started high in the immediate post-Soviet era but have since declined.

⁷ United Nations Educational, Scientific and Cultural Organization (2005), *Towards Knowledge Societies*, Paris, UNESCO, p. 71.

⁸ Some have argued that the situation is not as bleak as described here. In particular, Wu, Kaul, and Sankar (Kin Bing Wu, Venita Kaul, and Deepa Sankar, [2005] 'The Quiet Revolution', *Finance and Development* 42[2], June, pp. 29-31) document India's successful focus on increasing enrollment in primary and secondary schools. Unfortunately, the facts may not be as clear as presented by these authors. World Bank data (which are incomplete but usable and are taken from earlier and current UNESCO data) do not show the rapid changes these authors discuss. More importantly, the study cited above from the Education and Policy Data Center examines completion rates, not enrollment rates. Here, the story is still discouraging. India is not expected to reach 90% primary completion until 2027. Of course, the rate of change may be faster than predicted, in which case it would be true that India, at least, is in better shape than I have described for South Asia as a whole. Regarding gender disparities in enrollment, World Bank data indicate that in India, these, too, are changing only slowly.

⁹ David E. Bloom (2005), *ibid.*

¹⁰ UNICEF (2002), *State of the World's Children 2002*, UNICEF, Geneva.

¹¹ David E. Bloom (2004), 'Globalization and Education: An Economic Perspective', in Marcelo M. Suárez-Orozco and Desiree Baolian Qin-Hilliard, eds., *Education, Culture and Globalization in the New Millennium*, University of California Press, pp. 56-77.

The ugly news is that large educational disparities remain between wealthy industrial countries and the developing world. In Sub-Saharan Africa for example, only 60 per cent of primary-school-age children there are enrolled in school, compared to 95 per cent in high-income countries.¹² Worse yet, there is reason to believe that some of the somewhat optimistic statistics from UNESCO about large gains in enrollment in Sub-Saharan Africa are inaccurate, since they conflict with data about the share of GDP spent on education, which is declining.¹³ Some developing countries have seen declines in primary completion rates since 1990.¹⁴

Gender disparities in primary completion remain high in some countries. The worst region in this regard is South Asia, where 84% of boys but only 71% of girls complete primary education.¹⁵ This situation is a *prima facie* case of discrimination against girls. A lack of education severely limits a girl's opportunities in life. Girls who do not attend school tend to have children earlier. Uneducated mothers are less able to look after the health and education of their own children and are less able to manage family finances. Since education boosts earnings, uneducated women tend to earn less because they do not have the skills to participate in many sectors of an economy, and also because they are female.¹⁶ Attention to this issue in recent years has led to impressive successes. A concerted effort in Morocco to increase educational opportunities for girls led to a rise in their primary enrollment rate in the course of half a decade from 67% to 87%.¹⁷ But exceptions like Morocco highlight the more general failure. Moreover, disparities in access to education for girls are prevalent even *within* countries where progress is evident; girls in wealthier, urban settings may enjoy new opportunities, while those in the poorest and most remote regions remain

¹² David E. Bloom (2004), *ibid.*

¹³ Jean-Claude Berthélemy, 'Globalization and Challenges for Education in Least Developed Countries'. Paper prepared for the Joint Working Group on Globalization and Education of the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences 16-17 November, Vatican City, 2005.

¹⁴ UN Development Goals website: www.developmentgoals.org

¹⁵ World Bank, World Development Indicators 2004. Data for 2002.

¹⁶ A more extensive discussion of gender disparities in education is David E. Bloom and Mark Weston, 'Girls' Education in Developing Countries: Mind the Gap', August 25, 2003. <http://www.pbs.org/wnet/wideangle/shows/school/>

¹⁷ Annababette Wils, Bidemi Carrol, and Karima Barrow, *Educating the World's Children: Patterns of Growth and Inequality*, Washington, Education Policy and Data Center, 2005.

excluded. One other trend is noteworthy: In Latin America,¹⁸ as well as in tertiary education in the United States and the EU,¹⁹ girls are beginning to receive more education than boys.

With secondary and tertiary education, the enrollment gaps between regions are even wider than in primary education. Sub-Saharan Africa has just 26 per cent secondary enrollment.²⁰ Only 5 per cent of its tertiary-school-age population is enrolled in higher education. In South Asia, just 10 per cent receive tertiary schooling. High-income countries, by contrast, have over 65 per cent tertiary enrollment.²¹ Overall, individuals in developing countries receive an average of fewer than five years of schooling; in the industrialized world the average is over nine years.²²

The Pressures of Globalization

In a globalized world, education at all levels is more important than ever. Globalization refers to the integration of economies via movements of goods, capital, ideas, and labor. It currently occurs mainly through the first three of these channels. As countries have reduced barriers to imports and exports, allowed greater capital mobility, and opened up to foreign ownership of domestic industries, international trade and investment have flourished and economies have become more interdependent. The accelerated flow of knowledge and ideas as a result of communications improvements, meanwhile, has increased cultural and social interdependence.

Some countries have thrived on the back of globalization; others have not. By merging many national markets into one global market, globalization increases the competitive pressures faced by individuals, companies, and societies. Those countries that have been able to improve their pro-

¹⁸ Andersen, L.E. (2000), 'How is social mobility related to education policy in Latin America? A schooling gap regression analysis', Instituto de Investigaciones Socio-Económicas (IIESEC), Universidad Católica Boliviana, La Paz, Bolivia. Summary available at <http://www.eldis.org/static/DOC9630.htm>

¹⁹ Emily Hannum and Claudia Buchmann (2005), 'Global Educational Expansion and Socio-Economic Development: An Assessment of Findings from the Social Sciences', *World Development*, vol. 33, n. 3, pp. 333-354.

²⁰ David E. Bloom, Joel E. Cohen (2002), 'The Unfinished Revolution: Universal Basic and Secondary Education', *Daedalus*, Summer 2002, pp. 84-95.

²¹ David E. Bloom, David Canning and Kevin Chan (2005), 'Higher Education and Economic Development in Africa', paper presented at the World Bank, September 22.

²² UNESCO (2000), World Education Report 2000, UNESCO, Paris.

ductivity and find areas of competitive advantage have thrived. Those that have not have floundered. East Asia has achieved dramatic quality of life improvements by carefully opening up to the global economy, and its nations have moved from low to middle and upper-middle incomes in the past half-century. Ireland, Spain, and several Southeast Asian economies have also benefited from lowering barriers to trade and investment. Other regions have struggled. Sub-Saharan Africa experienced negative economic growth in the 1990s, with the number of people in the region living in poverty almost doubling since 1981. South Asia has fared better, but nearly 30 per cent of its people remain mired in poverty.²³

Education has been a vital component of the successful globalizers' progress. Those countries that have moved from low to higher incomes – think of Singapore, Hong Kong, Taiwan, South Korea, and Ireland – appear to have advanced at least partly on the basis of a strong commitment to education at all levels, as well as a careful openness to global markets. Others that have done moderately well, such as Chile and Mauritius, have followed a similar path. Looking further back the economist Amartya Sen has shown how Japan's economic development over the past 150 years was built on educational expansion and improvements.²⁴ China, too, had created a highly literate population through effective primary and secondary education before it began to develop rapidly in the 1980s and 1990s. India, on the other hand, neglected primary and secondary schooling in favor of higher education, and has been slower to benefit from globalization. These facts highlight two broad questions: First, for a given country (or for all countries), is there a 'best path' to educational expansion, if one of the goals is for a country to take advantage of globalization? In other words, is there an ideal order in which countries should focus on developing primary, secondary, and tertiary education? To what extent should resources be shifted from one level to another after a certain degree of progress is made? And second (and this is particularly hard to quantify), to what extent should resources be devoted to improving the quality of education, when there are generally tradeoffs between that and expanding access? These questions can only be resolved by further research and careful thinking about past experiences, the differences in country contexts, and the specific opportunities and challenges that globalization presents to a particular country.

²³ UN Development Goals website, *ibid.*

²⁴ Amartya Sen (1999), *Development as Freedom*, Oxford University Press, pp. 42-3.

Since globalization has heightened the economic importance of knowledge, education will also be key if other countries are to benefit from globalization. Countries whose populace has attained only primary education are likely to continue to have economies built on low-skilled labor with relatively low productivity. But even increased access to primary education can move farmers and other workers from 'very low' to 'low' productivity, with enormous immediate gains in welfare.²⁵ Achieving higher productivity, which is the key to rising incomes, requires that workers have skills that allow them to work well in services and industry. Countries that fail to educate girls are harming themselves economically, since they are drawing on only a portion of the skills their population could have. In a context of global production, when other countries are educating all of their residents, those that limit the economic contributions made by women will lose out.

As globalization opens up opportunities for educated workers, it is likely to expand economic inequalities *within* countries. Since workers with good skills are more likely to be in demand by industries that are connected to the international economy, they are the ones most likely to benefit. Workers who are relatively less educated will therefore find that even within their own country, they are falling behind. If globalization leads to increased joblessness, the results may be dramatic and will likely be similar to the unrest that frequently comes as a consequence of widespread unemployment. Such reactions may be particularly common as unemployed workers see their neighbors getting richer. For poorly skilled immigrants (who often migrate because of economic pressures, some of which are related to globalization), the new economics they face may be particularly problematic.

In short, education plays a crucial role in determining the winners and losers of globalization. But how does globalization affect education? Below we outline three action areas for educational improvement that globalization has made especially important. The first is the need to improve quality. The second relates to the expansion of secondary schooling, and the third to higher education.

²⁵ Dean T. Jamison and Lawrence Lau (1982), *Farmer Education and Farm Efficiency*, Baltimore, Johns Hopkins University Press.

THE NEED FOR ACTION

Globalization places a premium on the quality of education. As individuals advance from subsistence farming to trading agricultural goods and eventually move into services and industry, the need for flexibility in thinking and adaptation to new skills and technologies increases.²⁶ Globalization drives these processes, and the-old style teaching methods and materials are no longer appropriate. Obviously, expansion of educational opportunities is critical to providing more people with the benefits education confers. Such expansion will be even more beneficial if it is accompanied by an increase in quality.

Education has benefits for both individuals and societies. At an individual level, it enables people to develop their capabilities and realize their potential. It increases their knowledge of the world, and, while they are in school, brings them into contact with other students who will become friends or professional associates. And it gives individuals the skills needed to thrive in the job market, boosting their productivity and increasing earning power. In developing countries, it has been estimated that each additional year of education raises earning power by well over 10 per cent.²⁷

The benefits to societies are also broad. By increasing awareness of others' circumstances and motivations, education can make societies more tolerant, thereby increasing social cohesion.²⁸ In a globalizing world where the movement of labor means countries have to assimilate newcomers from many different backgrounds, tolerance and understanding become especially important to societies' wellbeing.

The economic benefits to societies arise from the fact that education raises national labor productivity, which is central to economic development, by strengthening the stock of human capital and facilitating the adoption of new technologies. An educated populace can benefit even those who are not educated, by providing a cadre of leaders to run the economy and the government effectively and by expanding the pool of

²⁶ See Kai-ming Cheng (2003), 'Education for All, but for What?'. Paper prepared for the American Academy of Arts and Sciences. September, for a probing discussion of the changing nature of work and the consequent need to rethink the goals and means of education.

²⁷ George Psacharopoulos and Harry Anthony Patrinos (2004), 'Returns to investment in education: a further update', *Education Economics* 12(2), pp. 111-134.

²⁸ This is not inevitable, of course. Some well-educated societies, such as Nazi Germany, have been murderously intolerant.

job-creating entrepreneurs. Education thereby contributes to poverty reduction, which reduces the strain on public funds and brings more people into productive activity.

Improving Quality

Merely being enrolled in school, however, does not ensure an individual will reap these benefits. The quality of education received is critical. Quality is more difficult to measure than enrollment figures,²⁹ and it has often been neglected by policy-makers keen to have something tangible to show for their investments in schooling. But recent work by Eric A. Hanushek and Dennis Kimko³⁰ suggests that countries that successfully pursue quality improvements (and that achieve only moderate results) can expect economic returns by 2040 that will pay for all educational expenditures by that year. In addition, these same researchers conclude that the positive economic growth effects of improved quality are evident even when East Asian countries are excluded from such an analysis and, provocatively, that 'direct spending on schools is unrelated to student performance differences'.³¹

In many developing countries, the educational experience is characterized by rote learning, outdated curricula, uninspiring and under-qualified teachers, and repeated failure to complete school years. Nearly one-quarter of those who entered developing country primary schools in 1993 did not reach the fifth grade.³² Scores on tests designed to measure student achievement in a variety of countries show that in the developing countries that participate in such tests, student learning of some basic skills is minimal. For example, students in low-income countries dominate the ranks of those in the lowest quartile in reading. Broadly speaking, countries throughout Latin America and Sub-Saharan Africa show low achievement in reading and math.³³ Despite advances in enrollment, moreover, illiteracy remains

²⁹ My discussion of school quality is tempered by the fact that many attempts to measure quality are based on observations that are relatively accessible, such as test scores. I am unaware of a comprehensive framework for assessing quality.

³⁰ Reported in Eric A. Hanushek (2005), 'Why Quality Matters in Education', *Finance and Development* 42(2), June, pp. 15-19.

³¹ Eric A. Hanushek, , and Dennis D. Kimko, 2000, 'Schooling, Labor Force Quality, and the Growth of Nations', *American Economic Review*, vol. 90, n. 5 (December), pp. 1184-1208.

³² Bloom, Cohen (2002), *ibid.*

³³ United Nations Educational, Scientific and Cultural Organization (2004), *Education for All Global Monitoring Report 2005: The Quality Imperative*, Paris, UNESCO.

rife in some regions, suggesting many pupils have not long been learning even basic skills in school. In South Asia, 27 per cent of males aged 15 or over and 56 per cent of females are illiterate. In Sub-Saharan Africa, the respective proportions are 29 per cent and 42 per cent.³⁴

There are several factors that influence the quality of education. Physical facilities, such as buildings and books, can affect the learning experience. Pupil-teacher ratios may also be important. In Tamil Nadu, India, Duraisamy and co-authors found that rising primary and secondary enrollment rates significantly outpaced increases in the number of teachers. Enrollment grew by 35 per cent between 1977 and 1992. Teacher numbers increased by just 4 per cent.³⁵

Perhaps most important is the ability and enthusiasm of teachers themselves. Teachers' ability, of course, depends largely on their own education, so countries with weak education systems are at a disadvantage relative to better-educated populations. Intensive training courses are one way of helping teachers catch up. Use of technology, too, such as online teaching materials and lesson plans, and Internet-based discussion and training groups, can accelerate teacher development.

Teachers' motivation also needs to be addressed. Low salaries, high pupil-teacher ratios,³⁶ strict curricular diktats from governments, and

³⁴ World Bank (2005), World Development Indicators 2005 (data from 2002).

³⁵ P. Duraisamy, Estelle James, Julia Lane, Jee-Peng Tan (1997), *Is there a quantity-quality tradeoff as enrollments increase? Evidence from Tamil Nadu, India*, Policy Research Working Paper, World Bank, Washington, DC.

³⁶ High pupil-teacher ratios (PTR) would seem to be a definite impediment to learning and to teacher motivation. Interestingly, however, China (which has a fairly low PTR but large classes (45-50 students) because of poor utilization of teachers) and the Republic of Korea (which has large classes) – data are from 1992 and are reported in K.M. Lewin, (1998). 'Education in Emerging Asia; Patterns Policies and Futures into the 21st Century', *International Journal of Educational Development International Journal of Educational Development*, Vol 18, Number 2, pp. 81-118 – have both had good educational outcomes. One hypothesis that has been suggested to explain this apparent anomaly is that these countries have a long history of emphasizing education, and that culturally bound expectations affect the performance of teachers, parents, and students – and that these factors are more important than class size. But in much of the world, large class sizes probably really are demoralizing to both students and teachers. Another interesting point is that instructional radio for mathematics has shown huge and sustained test score gains for substantial populations. See Jamison, D.T., Klees, S.J. and Wells, S.J. (1978) *The costs of educational media. Guidelines for planning and evaluation*, Beverly Hills, Sage Publications. It is not altogether clear whether this success has mainly to do with the perhaps-high motivation of those who choose to learn via radio, or with the medium of instruction itself.

mountains of paperwork often demoralize teachers and give them few incentives to provide quality teaching. Irrelevant curricula add to the burden, and it is important to involve teachers (as well as parents and, perhaps, businesses given the latter's awareness of an economy's changing needs) in curriculum reform and give them the flexibility to be innovative in their teaching methods. Worthwhile rewards based on measurable results (improved exam scores, for example, or increased literacy and pass rates) are likely to stimulate innovation and encourage on-the-job learning.

Secondary Education

Although the United Nations Millennium Development Goals highlight the importance of education, they refer only to primary education. Primary education is, of course, crucial, and efforts by countries and international donors to strengthen it over the last few decades have been important. Without a strong primary education system, potential entrants into secondary school will not be as prepared as need be. In a globalizing world, however, primary education is not enough.

The skills attained in primary school may be sufficient in a poor, static, and isolated economy where knowledge of matters beyond one's closest community is unnecessary and there is little opportunity to use more advanced skills. But globalization is increasing the returns to moving up the industrial value chain and broadening knowledge horizons; a deeper schooling than that provided by primary education is therefore required. Countries that do not devote attention to secondary schooling will not be able to advance economically – as UNESCO has stated, 'for economic growth to take place, a high proportion of the population has to have received secondary education'.³⁷

The improved knowledge and skills generated by secondary education have long-term repercussions. Women who have attended secondary school have fewer children than those who have not. The former group delay childbearing in order to use their skills in the workplace; they are more aware of contraception and of the economic benefits of smaller families; and their increased knowledge of health care means their children may be more likely to survive to adulthood, so they need fewer children to attain their desired family size. In Brazil, women with secondary

³⁷ UNESCO International Commission on Education for the Twenty-first Century.

education have around 2.5 children. Illiterate women have 6.5 children, on average.³⁸ Hannum and Buchmann have shown that a 10 per cent increase in gross secondary enrollment ratios is associated with an average reduction in family size of 0.2 children, and they offer a well-articulated set of reasons to believe that increased secondary education actually leads to reduced family size.³⁹ Reduced fertility, in turn, can spark a demographic transition and create a baby boom generation that can make a sizable contribution to an economy.

Governments and international agencies, which were initially slow to invest in secondary schooling, have at last begun to respond to the growing need. The World Bank, for example, which admitted that until the 1990s, 'secondary education was rarely placed on the policy agenda',⁴⁰ increased lending for the sector from US\$30 million to US\$400 million between 1989 and 1998.⁴¹ The World Bank's new publication on secondary education stresses the importance of secondary education as 'the highway between primary schooling, tertiary education and the labor market'.⁴²

As a result of the historic neglect of secondary education, the gaps in enrollment rates between industrialized and developing countries – gaps that have shrunk for primary schooling – have grown.⁴³ In the developed world, around 80 per cent of the population over the age of 15 has received some secondary education. In Latin America and the Caribbean, where primary enrollment has risen above 90 per cent, fewer than 50 per cent have

³⁸ S.J. Jejeebhoy (1996), *Women's Education, Autonomy and Reproductive Behavior: Experience from Developing Countries*, Oxford University Press, New York.

³⁹ E. Hannum and C. Buchmann (2003), 'The Consequences of Global Education Expansion: Social Science Perspectives', Occasional Paper of the American Academy of Arts and Sciences, Cambridge, MA.

⁴⁰ Serrant, Ted D. and Maureen W. McClure (2000), 'Secondary Education Reform: Policy Briefing Paper', Washington, DC, World Bank.

⁴¹ David E. Bloom (2004), 'Beyond the Basics: Patterns, Trends and Issues in Secondary Education in Developing Countries, 2004', Paper prepared for the World Bank

⁴² World Bank (2005), *Expanding Opportunities and Building Competencies*, Washington, The World Bank.

⁴³ The vastly different fraction of the population attending secondary schools in developed (as represented by Northern Europe) and developing (as represented by Latin America) countries has very old roots. In 'The Challenge of International Educational Gaps in the Context of Globalizations', Juan J. Llach shows that this divergence goes back more than a century. (Paper prepared for the Joint Working Group on Globalization and Education of the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences 16-17 November, Vatican City, 2005).

received secondary schooling. In South Asia, the proportion drops to around 30 per cent, while in Sub-Saharan Africa fewer than 20 per cent of people over the age of 15 have attended secondary school.⁴⁴

If the quantity of secondary schooling is to be improved, much will depend on the resources devoted to the sector. The expansion of access to primary education was spurred by huge investments on a global as well as national scale. As diseconomies of scale set in as primary schooling reaches saturation levels, the relative priority of directing resources to primary and secondary education will likely change.

Smarter use of funds is also essential. Good schooling relies more on teachers than buildings. Developing a cadre of well-trained and highly motivated teachers should take precedence over building plush facilities. Removing the impediments to the work of teachers and giving them the freedom to be creative and innovative can increase the return on the investment in teachers' training and salaries. This will have the added effect of reducing the need for bureaucrats to manage every stage of the secondary education process – the funds freed up by this can instead be invested in teachers.

Enrollment is not the only problem, however. The quality of secondary schooling is also weak in many developing countries. Data on quality are patchy, but in Uganda, for example, where 15 per cent of secondary teachers have no training at all, the median repetition rate is 15 per cent.⁴⁵ Clearly, secondary school teachers need more advanced knowledge than primary teachers, so it may be more expensive to train them and keep their skills updated. Much can be gained through self-teaching, however, and if results-based incentives encourage teachers to seek out their own ways to improve – through peer-to-peer discussion groups, for example, or online teaching materials – training costs incurred by education systems need not take up too much of the budget. Such an approach will require giving teachers the autonomy to work toward the desired results in their own way. This is not always an easy step for governments to take, but where resources are tight state education departments' time would be better spent developing incentives and framing clear standards than micro-managing individual teachers.

⁴⁴ D. Cohen and M. Soto (2001), *Growth and human capital: Good data, Good Results*, OECD, Paris.

⁴⁵ UNESCO Institute for Statistics (2001), *Sub-Saharan Africa Regional Report*, UIS, Montreal.

What is needed is a focus on the essentials. The key outcomes of secondary education are literacy, numeracy, and social skills that equip pupils to play a productive part in the workplace and in society. In expanding access to secondary schooling while maintaining a focus on quality, policy-makers, teachers, and parents will benefit from keeping these goals in mind at every stage, and asking, with each new initiative or measure, whether it will contribute to their achievement and if so, how efficiently.

Higher Education

The third key area for educational improvement in a globalized world is tertiary schooling. The latter has not always been recognized as a public good worthy of investment. In developing countries in particular, it has been regarded as a luxury rather than a necessity. In high-income countries, as noted earlier, gross tertiary enrollment ratios are about 65 per cent. In the developing world, despite increases in the past two decades, they languish below 20 per cent.⁴⁶

International donors and national governments for long saw higher education as elitist – it was historically the preserve of the wealthy, and with large swathes of populations not even receiving primary schooling, investing in higher education was considered inequitable. Rate of return calculations carried out by economists, who showed that primary and secondary education were sounder investments from both a private and social point of view, gave added force to the equity arguments.⁴⁷

These arguments, however, did not tell the whole story, and globalization has accentuated their flaws. Traditional rate of return analysis focused on the private benefits of higher education in terms of individuals' earnings and the public benefits in terms of taxes paid by those individuals. It did not recognize the many broader benefits. Globalization places a premium on the skills and knowledge gained in universities and advanced vocational colleges. Knowledge has become a key source of

⁴⁶ David E. Bloom, Henry Rosovsky (2005), 'Higher Education in Developing Countries', in James J.F. Forest and Philip Altbach, eds., *International Handbook of Higher Education*, vol. II, forthcoming.

⁴⁷ Further discussion of the rate of return arguments and, more broadly, of the questions of elitism that arise in supporting higher education, are addressed in The Task Force on Higher Education and Society (2000), *Higher Education in Developing Countries: Peril and Promise*, Washington, The World Bank.

comparative advantage between nations.⁴⁸ India's recent success in the information technology and service industries has been built on a strong higher education system whose institutions, such as the Indian Institutes of Technology, have tailored their teaching and research to the demands of the global marketplace. The East Asian tiger economies, too, used the knowledge and flexibility of mind inculcated by their higher education systems to move rapidly from low-value to high-value industries, with enormous effects on quality of life in the region.⁴⁹

Effective tertiary schooling gives countries a corps of people with a higher level of capabilities than can be attained in primary and secondary school. In an increasingly competitive world economy where companies have to outperform not just local rivals but international competitors, a skills race has developed. Countries that possess only basic skills and knowledge may be able to penetrate global markets if foreign investors buy their goods. They will have difficulty, however, in adding value to primary commodities by processing them or branding and marketing them. Nor will diversification into more lucrative sectors prove straightforward. Societies that do not upgrade their skills are likely to remain at the bottom of the economic value chain, vulnerable to exploitation by others and with slim hopes of being able to exert control of the global integration process.

Higher education does not just benefit those who receive it. A United States study comparing states with high and low proportions of college-educated workers found that earnings in the former were higher for both graduates and non-graduates.⁵⁰ A possible reason for this is that individuals with higher education were more likely to become entrepreneurs than those with lower levels of schooling. More-educated entrepreneurs, moreover, created more jobs.⁵¹

As well as providing nations with more productive people who can thrive in international business, higher education gives countries the local

⁴⁸ Extensive discussion of the increased importance of knowledge in the development of countries is found in United Nations Educational, Scientific and Cultural Organization (2005), *Towards Knowledge Societies*, Paris, UNESCO.

⁴⁹ Interestingly, and perhaps tellingly, Latin America, and the Middle East and North Africa, both of which have had much higher rates of participation in higher education, did not benefit in the same way.

⁵⁰ David E. Bloom, Matthew Hartley and Henry Rosovsky (2005), 'Beyond Private Gain: The Public Benefits of Higher Education', in James J.F. Forest and Philip Altbach, eds., *International Handbook of Higher Education*, vol. I, forthcoming.

⁵¹ *Ibid.*

knowledge resources and leadership skills needed to take part successfully in international trade negotiations; design education systems that meet the needs of a changing world; manage the negative effects of globalization such as environmental damage and the spread of infectious disease; and find ways to ensure the fruits of global integration contribute to social goals such as poverty reduction. Higher education institutions also provide crucial support for primary and secondary education, both by training teachers for these lower levels and for studying what educational practices work best in a particular country context.

A side note here: Although higher education does offer a country the advantages specified above, and despite the fact that the benefits of higher education accrue to wide segments of the population, there is still no reason to think that *universal* higher education has become more important because of globalization. Indeed, the same is true of primary and secondary education: the benefits that globalization can bring to a country, although enhanced by people having each of the three levels of education, do not depend on *everyone* being educated. For the foreseeable future, there will be economic activities that are not particularly related to foreign commerce or international competitiveness, but that are productive from a personal and national point of view and that can be carried out by people with a wide range of educational achievement. The specific types of jobs that are available will vary considerably from one country to another. To the extent that a country can define its niche in the world economy and ensure that its education system produces graduates who can work well in the sectors of the economy relevant to that niche, both workers and employers can benefit. Both government and business elites typically carve out such niches, and their choices will help to determine which emphases within an education system will be most beneficial to students. An education system that is seeking relevance will need to be constantly attuned to producing graduates who are flexible enough that they can continually learn new skills as they are required in new enterprises. But in the end, there is, of course, another, very fundamental argument for universal education that is widely accepted: that education is of value in itself. Whether or not a country is doing everything it can to benefit from globalization, educating its population well and striving to do so in a way that promotes educational equality is a worthy goal.

In any case, expanding access to higher education does not come without risks. The phenomenon of 'brain drain', whereby well-educated individuals take their skills abroad and rob their home countries of a return on

the investment in their schooling, has accelerated in the wake of globalization. Recouping some of this investment is politically important if advocates of higher education are not to be accused of squandering their countries' resources. Globalization does, however, offer opportunities for countering the brain drain. Leading research universities in some parts of the developing world are increasingly competitive with peer institutions in the United States and Western Europe.⁵² (This development raises an important question: Should developing countries seek to create competitive, world-class universities, or should they focus higher education resources in ways that identify and capitalize on the comparative advantages each country may possess?)

Improvements in communications mean the generation of knowledge is no longer confined to the physical space of a single university or laboratory. Today, universities are linking up with other types of institution, including businesses, private consultancies, governments, NGOs and other higher education establishments to develop knowledge. These institutions may be based in one country or several.

Some countries have attempted to turn the outward migration of well-educated graduates to their advantage. The Colombian Network of Researchers and Engineers Abroad (Red Caldas) brings together Colombian scientists and engineers from 23 countries to develop solutions to the country's problems. Collaboration is largely conducted by email.⁵³ The University of Cape Town in South Africa, meanwhile, has set up an international knowledge-sharing network whereby researchers from universities across Sub-Saharan Africa work together to find ways to promote development in the region.⁵⁴

The possible solutions to brain drain overlap with the solutions to the developing world's higher education deficit. If the economic gaps between developed and developing worlds are to be diminished, strengthening systems of tertiary schooling must become a priority. The benefits of higher education for countries attempting to profit from globalization are broad. So too are the skills needed. Skills in policy development, trade negotiations, and the equitable governance of health and education systems must be combined with innovation in business, the flexibility to adopt and devel-

⁵² See e.g., 'China Luring Scholars to Make Universities Great'. www.nytimes.com/2005/10/28/international/asia/28universities.html

⁵³ David E. Bloom (2003), *op. cit.*

⁵⁴ *Ibid.*

op new technologies, the ability to identify and take advantage of new markets, and the skills to run successful enterprises and work productively with foreign partners.

No single type of institution can produce all these skills. Higher education should therefore be viewed as a multi-faceted system that gives a country the broad set of abilities it requires.⁵⁵ Research universities will be one part of this system, generating new knowledge and giving students both a broad liberal schooling and specialist knowledge in key areas. Institutions of higher education are also the seat of much teacher training. Vocational colleges will be important too, to give students the specialized technical and managerial skills to thrive in industry. Some learning will take place on site, but some students will prefer distance-learning courses – a method of learning that advances in Internet and mobile technology have made more feasible. Private for-profit institutions are likely to provide some tertiary schooling, with governments fulfilling a regulatory role to ensure standards are adhered to. In public institutions, meanwhile, governments will need to find ways of subsidizing the education of those who lack resources without breaking the bank, perhaps through a system of student loans where fees are repaid once graduates reach a certain level of earnings.

A systemic approach to higher education requires visionary planning, with a constant focus on a country's needs. Involving other sectors, including primary and secondary education systems, business, and the non-governmental sector, will aid in the design of a broad and responsive system with relevant curricula. Government's role will involve providing stable and long-term funding, developing standards and goals to ensure quality, setting some research priorities, and monitoring and evaluating the outputs of the system as a whole.

Developing higher education systems that produce what a country needs in today's rapidly changing world is obviously a complex task. It is also an essential one, and developing countries need to make a start now if they are to begin to catch up with the knowledge economies of the industrialized world. Financing the expansion of higher education is, of course, quite difficult in most developing countries. Most students cannot afford the costs, but tax-based finance often puts a disproportionate share of the burden on the poor. Deferred fees and a well-designed loan program will

⁵⁵ Task Force on Higher Education (2000), *Higher Education in Developing Countries: Peril and Promise*, Washington, DC, The World Bank.

often be the answer,⁵⁶ although many developing countries will find it difficult to start and operate a loan program that is financially sound and that reaches the target population.

Conclusions

Globalization is increasing the pressure on education systems in both rich and poor countries. So far, although developing countries have managed to narrow the gap in terms of primary education, rich countries have responded most effectively to the pressure. Recognizing the need for more advanced skills and knowledge, they have invested heavily in secondary and tertiary schooling and maintained a strong focus on improving quality.

Developing countries and their international partners have been slow to acknowledge the growing importance of higher levels of schooling, and they have suffered as a result. Basic literacy and numeracy skills and a lack of advanced knowledge – 90 per cent of patents are granted to innovators in industrialized countries, which contain just 15 per cent of the world's population⁵⁷ – have left them ill-equipped to benefit from global integration and vulnerable to its less benign consequences.

Fortunately, globalization offers these countries opportunities to catch up. Speedy and inexpensive communications technology gives them and their education establishments easier access to other institutions and knowledge networks, facilitating collaboration on issues ranging from curriculum design and teacher training to primary research and policy development.

Increasing primary education enrollment has been a major development success story in recent decades. As globalization advances, however, a new set of priorities for education must be addressed. Improved quality at all levels and expanded access to secondary and tertiary schooling are vital if developing countries are to close the economic gap with the West. National governments and international donors have begun to recognize this, and they should not delay in turning recognition into action.

High-income countries can play a significant role in education development. Jamison and Radelet⁵⁸ suggest that such countries have three key

⁵⁶ Nicholas Barr (2005), 'Financing Higher Education', *Finance and Development* 42(2), June, pp. 34-37.

⁵⁷ Bloom, Rosovsky (2005), *op. cit.*

⁵⁸ Dean T. Jamison and Steven Radelet (2005), 'Making Aid Smarter', *Finance and Development* 42(2), June, pp. 42-46.

roles to play: (a) facilitating the diffusion of best practices, e.g., the elimination of user fees, increasing hours of instruction, improving student health, and measures for improving quality; (b) supporting research on methods for improving education and testing the results of new initiatives; and (c) encouraging improvements by targeting funds to countries that use them successfully.

One final factor deserves mention: a government's, and a country's, political will to address this issue is crucial. Politicians often pay little attention to improving education, because they are unlikely to be in office long enough for any improvements to be credited to them. In addition, the poor in most countries are the most likely to need significantly strengthened education – and these are exactly the people whose needs are easiest to ignore. Exacerbating the situation is the fact that expenditures on education may be directed to areas in which the ruling political party has (or is seeking) supporters. None of these circumstances militates in favor of improved education for those who need it most. Some countries or regions within them have mustered the political energy to prioritize education, with exceptional results. Costa Rica, Cuba, Sri Lanka, and the Indian state of Kerala stand out in this regard. The case of Morocco, cited earlier, is particularly encouraging. None of these countries or regions has a particularly strong economy, but each of them set out to make educational improvements and did so dramatically. Other countries should take note.^{59,60}

⁵⁹ More on political will and on the value of promoting education appears in David E. Bloom, 'Universal Education and Human Progress', *Wide Angle Discussion Guide 2*. New York: Educational Broadcasting Corporation, 2004. 15-17.

⁶⁰ See also, Javier Corrales (2005), 'The State is Not Enough: The Politics of Expanding and Improving Schooling in Developing Countries', Working Paper of the Project on Universal Basic and Secondary Education, September, Cambridge, MA, American Academy of Arts and Sciences.

PROMOTING SOUTH-SOUTH AND NORTH-SOUTH COOPERATION IN EDUCATION AND RESEARCH: A QUESTION OF RESPONSIBILITY

MOHAMED H.A. HASSAN

I would first like to thank the Pontifical Academy of Sciences for once again inviting me to participate in one of its very stimulating workshops, and for giving me yet another opportunity to speak before such a distinguished group of intellectuals. I was here three years ago for a workshop examining the cultural values of science. The inspiring presentations – and equally inspiring discussions that followed – made it one of the most memorable workshops in which I have participated.

This year's workshop promises to be equally rewarding – if not more so. I am particularly encouraged by the presence of the Pontifical Academy of Social Sciences. That makes it even more likely that we will be exploring compelling issues that lie at the increasingly busy intersection between science and society.

My talk today will focus on strategies for promoting South-South and South-North cooperation in scientific research and education. Strategies that promote scientific cooperation are key to promoting sustainable economic and social development, particularly in developing countries. If anything, the global economy and global information and communication networks have only heightened the degree of international cooperation over the past two decades. Science has always been an international enterprise, and cooperation has always been a critical driver for how science – at least how excellence in science – gets done.

I might also add that the rising level of scientific excellence in the developing world – most notably, in countries such as Brazil, China and India – have made international cooperation in science not only more likely, but more global and more fruitful. It's a trend that benefits not just the developing world, but the entire world.

A decade ago, policy analysts and policy-makers spoke about a North-South divide in science. That divide has by no means disappeared. Yet, as it narrows for some developing countries, it widens for others – mainly those nations in sub-Saharan Africa and the Islamic world.

That has led to what some observers now call a South-South divide between science-and-technology (S&T) lagging countries and the rest of the world. A recent survey conducted by TWAS listed 77 S&T-lagging countries – a new group of 77 that includes all of the least developed countries (LDCs), as defined by the UN, and most of the low-income countries, as defined by the World Bank.

The good news is that an increasing number of nations seem to be following suit. Over the past few years, a number of African countries – including Nigeria, South Africa, Tanzania, and Uganda – have all embarked on unprecedented science capacity building programmes in education and research that have helped advance their agendas for sustainable development. The results have been encouraging. Here are a few snapshots of the progress that has been made:

Nigeria has increased its budget for science three-fold over the past five years and launched its first remote sensing satellite in 2003. It now plans to launch a communications satellite next year in collaboration with China.

South Africa, with Africa's strongest scientific capacity and infrastructure, just last week inaugurated the Southern African Large Telescope (SALT), the largest single optical telescope in the southern hemisphere. The telescope, costing US\$36 million, is open to the entire international scientific community and, most notably, scientists from developing countries. It can see distant stars and galaxies that are a billion times too faint to spot with the naked eye.

Tanzania doubled its budget for science and technology last year. In June, the president, at the launch of the Tanzanian Academy of Sciences, announced that his country would increase its investment in science and technology to 1 percent of the nation's gross domestic product by 2015.

Uganda has embarked on an ambitious programme for building centres of excellence in science, technology and innovation, and has taken a US\$20 million loan from the World Bank to support its plans.

* * *

Good news on the science-capacity building front for these developing nations is good news for all nations. That's because the strong foundation

for science now being built by the 'larger' and 'richer' developing countries – Brazil, China, India and a growing list of others – creates unprecedented opportunities for both South-South and North-South cooperation.

Too often, in the past, the cutting-edge science taking place in developed countries was too advanced and too remote to be of value in solving real-life problems in developing countries. As a result, developing countries too often viewed science as a luxury that only wealthier countries in the developed world could afford. And as scientific research advanced at an ever-faster pace in the developed world, the gap between the scientific 'haves' and 'have nots' only grew.

One statistic sheds revealing light on the consequences of such trends: The World Health Organization (WHO) has estimated that more than 90 percent of the annual US\$65 billion global investment in health research is devoted to diseases that afflict rich people in rich countries: cancer, heart ailments, hypertension, obesity. That leaves the health of poor people in poor countries short-changed, rendering such disease as malaria, schistosomiasis and tuberculosis as neglected orphans in well-healed research and development programmes financed by international pharmaceutical companies. Think of this: of the 1200 new drugs developed between 1971 and 1996, only three were antimalarial. This despite the fact that malaria is the fourth leading cause of death among children in the developing world and more than 40 percent of the world's population lives in areas where malaria is transmitted.

By the same token, why did initial investments in biotechnology in the 1980s and early 1990s often focus on making strawberries less resistant to frost and not on making cassava less resistant to disease? And why have substantial amounts of funds for nanotechnology gone into strengthening the outer coating of tennis balls and developing stain-resistant fabrics for pants and skirts, and not on developing nano-filters for water purification?

The answer is that the vast majority of scientific research – both basic and applied – has been conducted by scientists living and working in developed countries, or by scientists from developing countries who had no choice but to pursue their careers in developed countries. The developed world's 'research monopoly' created a skewed research agenda that tilted heavily towards challenges of particular importance and interest to the North, but of little consequence to the South.

Today we are, at least potentially, at the dawn of a new era in global science – an era in which scientific capacities are reaching beyond the United States and Europe to Asia, Latin America and even Africa. The global sci-

entific community, as a result, finds itself able and willing to explore a full range of issues of importance to both rich and poor nations.

We should all welcome the opportunities presented by the growing promise of science – and science-based development – in the developing world. But there are challenges as well.

First, there is the challenge of e-learning. The internet provides an excellent tool for students and educators worldwide to interact, exchange experiences and learn from each other. Advanced courses and lectures developed by world-class universities can be made available free of charge to anyone, anywhere and at any time. Educators can also adapt the material to their own needs, including translating it into their local languages. Currently, the leading courseware provider is the Massachusetts Institute of Technology (MIT) in Boston, MA, USA, which provides open courseware in over 900 subject areas. As the MIT website points out: ‘History has proved that education and discovery are best advanced when knowledge is shared openly’. Will other leading universities in the world (both in the North and in the South) follow the example set by MIT? Will students and teachers in the S&T-lagging countries have affordable and reliable high-speed internet connections to make full use of the open courseware system?

Second, there is the challenge of advancing South-South cooperation in scientific research and education. China is now a world leader in nanoscience and nanotechnology. A survey conducted last year showed that Chinese scientists published more articles on nanoscience and nanotechnology in international peer-reviewed journals than any other country, including the United States. India has become a world leader in information technologies and in the development of computer software. And Brazil has become a leading country in space science and technology. These three – as well as other – developing countries that are displaying a growing proficiency in science and technology, undoubtedly have a primary obligation to the economic and social well-being of their own citizens. Yet, will they use a portion of their newly created scientific and technical capabilities to help their less fortunate brethren in other parts of the developing world, especially in the least developed countries? Will South-South cooperation in education and research thrive as science begins to thrive in segments of the South?

Third, there is the challenge of democracy and good governance. S&T-proficient countries may have moral – and indeed strategic – reasons for helping others in the developing world in building their research and education capacities. But such help will only prove fruitful if recipient countries are prepared to make effective use of the assistance. That’s why one

of the best ways for building a strong foundation for successful initiatives in South-South and South-North cooperation in education and research is through the enactment of political reforms based on openness, transparency and accountability – three fundamental principles of both good governance and good science. It should not be surprising, then, that the countries in sub-Saharan Africa that have shown the most promising advances in political reform – Ghana, Nigeria, Senegal, South Africa, Tanzania and Uganda – have also shown the most promising growth in education and research capacity. Will such interrelated progress in politics and science continue in the countries where it has taken place? Will it spread to other countries?

Fourth, there is the challenge of engaging – and convincing – the public. Emerging democracies in Africa, for example, are creating opportunities for scientific organizations, such as science academies, to interact strongly with decision-makers – including members of parliament and ministers of science and technology. This is both a challenge and an opportunity for scientific communities in Africa. Will scientists be able to acquire the diplomatic and communications skills that are so crucial for success in the political arena? Will political leaders be receptive to their ideas?

Fifth, there is the challenge of regional cooperation. It is regional cooperation – that is, cooperation among neighbours who share common problems and common capabilities – that may hold the most promise for advancing science in the developing world. That is why we should all applaud the recent decisions by The New Partnership for Africa's Development (NEPAD) and the African Union (AU) to support capacity building efforts in education and research across Africa through the creation of scientific centres and networks of excellence, and the upgrading of both research and teaching at universities. Will sufficient funding follow on the heels of this promising rhetoric? Will such funding be sustained over the long term?

Sixth, there is the challenge of transforming the brain drain into a brain gain. For too long, developing countries have bemoaned the loss of home-grown scientists to developed countries, where career opportunities, working conditions and pay are so much better. But complaints are no substitute for policy and usually accomplish little unless a positive plan of action, designed to address the complaints, follows. Today, some countries – notably, China, India and South Korea – have sought to make the best of this situation by developing scientific exchange and visiting professorship programmes that involve members of their scientific diaspora. The results so far have been encouraging, and there is no reason to preclude the possi-

bility that some scientists who have left will some day return home if working conditions and job opportunities improve in the native countries.

And seventh, there is the challenge of devising effective aid programmes to help African nations build and sustain their *institutions* of higher education and research. Aid remains critical for improving the state of universities in many poor nations, especially in Africa and the least developed countries.

In the last two decades, the state of higher education in most African countries has deteriorated substantially. Severe cuts in government spending have pushed universities and research institutions into steep decline. Universities that once served as beacons of hope – including the universities of Ibadan in Nigeria, Dakar in Senegal, Dar-es-Salaam in Tanzania, Khartoum in Sudan and Makerere in Uganda – have been turned into empty shells. Buildings are poorly maintained; modern laboratory equipment is rarely available; and faculty and staff go underappreciated and sometimes unpaid. External funding and joint initiatives with other countries have also declined.

That is why we should all be encouraged by the recommendations of the recent report of the ‘Commission for Africa’, established by the UK Prime Minister Tony Blair last year, which called on the world’s richest countries to contribute US\$5 billion over the next decade to re-build universities and an another US\$3 billion to help build centres of excellence in sub-Saharan Africa. Both of these broadly based initiatives, which were subsequently partially embraced by the Group of 8 richest nations at their summer meeting in Scotland, are based on strategies developed by Africans themselves.

* * *

Mr. Chairman,

If current trends continue, this may prove to be the most promising time for advancing scientific research and education in the developing world in the past three decades. Yet for the promise of today to be fulfilled, the world’s scientific communities must also shoulder new responsibilities and adopt a new set of principles.

First, the scientific community in the developing world has a responsibility to devote at least a portion of its knowledge and expertise to addressing real-life problems and to educate a new generation of problem-solving scientists. It can no longer simply pursue science driven by its own curiosity or only seek to answer cutting-edge questions posed by the international scientific community. At the same time, the scientific community in the

developing world must open its doors to the practitioners of traditional knowledge and devise cooperative strategies for harmonizing indigenous knowledge with modern science. Progress in such fields as public health, the conservation and sustainable use of indigenous and medicinal plants, and the protection of biodiversity depend, to a large extent, on strengthening the ties between these two knowledge systems, based on a sense of mutual admiration and respect.

Second, the scientific community in the developing world must actively convince both decision-makers and the public at large that science plays a vital role in a society's well-being. Researchers in the developing world (the same can be said of the developed world too) can no longer assume that science is inherently valuable and that such value should be self-evident to the public. That means scientists have an obligation to explain their work to governmental officials and the public in easily understood language.

Third, leading scientists, as represented by those elected into merit-based national science academies, should advise their governments on critical policy issues related to scientific research and education. In the developing world, these issues now extend beyond questions of increasing crop yields and improving access to safe drinking water to encompassing such cutting-edge scientific fields as cloning, genetically modified organisms, nanotechnology and global warming – all of which are likely to impact every nation's future economic and social well-being.

And fourth, scientific communities in the developed and developing world should be encouraged both by their governments and international aid agencies to devote part of the research and education agenda to critical problems facing the South and, particularly, the S&T-lagging countries. The Canadian government, for example, recently proposed to allocate 5 percent of its national research and development budget to science-based issues of importance to the developing world. There is no doubt that the implementation of this proposal will encourage an increasing number of scientists and educators in the country to pursue research initiatives relevant to the developing world and to devise strategies to work closely with their colleagues in the South. The European Union also has dedicated a portion of its research budget to science-based problems in the developing world and on fostering collaboration between European and developing world scientists to address these issues. Such measures, I hope, will become the cornerstone of South-North scientific cooperation in the future.

So, how do we get from here to there: from plans of action to real action; from knowledge of what works to putting our knowledge to work? It takes not only commitment by the scientific community and good scientific capacity to succeed but also commitment by decision-makers and their ability to develop effective scientific policies – on the national, regional and international fronts.

On the national front, this means that governments must provide a sustained commitment to education and research and that scientists, in turn, must focus on real-life issues – all as part of a new social contract between science and society.

On the regional front, this means that intergovernmental organizations in S&T-lagging areas – such as NEPAD in Africa and COMSTECH in the Islamic world – must serve as both public advocates and strategic policy centres for the advancement of scientific research and education.

On the international front, this means a sustained commitment from both donor nations and international financial institutions to ensure that all nations participate in the world of science and that all nations enjoy the benefits of science-based development. Most significantly, this means uplifting the scientific capabilities of the 77 countries that are lagging in science and technology.

To achieve this goal, it is necessary to establish and support a number of regional and/or international centres of excellence in these countries. Such centres will act as a magnet and attract talented students and researchers, and therefore facilitate fruitful regional and international cooperation in research areas relevant to poor countries. Let us not forget the role of such international centres as those operating within the Consultative Group of International Agricultural Research (CGIAR), several of which are located in S&T-lagging countries, or the International Centre for Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya – noble institutions that have helped to build and sustain scientific excellence and to mobilize the global scientific community to address critical issues in 'left-behind' regions of the world.

To uplift the scientific capabilities in these regions, it will also be necessary to provide more support for UN organizations such as UNESCO, FAO and WHO that have focused on issues of education, poverty alleviation, public health and sustainable development. These organizations have made a difference, but have yet to reach their potential; and the only way that potential can be reached is with additional funds. UNESCO's annual budget, for instance, is substantially less than the average budget of an elite university in the United States.

And that brings me to my own organization – TWAS. As many of you know, TWAS has been an advocate of South-South cooperation in scientific research and education for the past two decades.

When TWAS was launched in the mid-1980s, South-South cooperation was very weak. There was simply not a sufficient number of institutions of excellence for a dynamic and sustained exchange of ideas to take place. There was also lack of information about the research activities of the small number of existing competent institutions, and few opportunities for students and young researchers to visit these institutions.

Today, South-South cooperation has emerged as a powerful force for change in the developing world thanks largely to the growing scientific capabilities of research centres and universities in such S&T-advanced developing countries as Brazil, China and India. These nations now have universities and research centres of increasing excellence capable of meeting the requirements of not only their own scientists, but of scientists from other developing countries who can visit these institutions to pursue both research and education.

TWAS has played a key role in the development of South-South cooperation through its sponsorship of such initiatives as the TWAS South-South fellowship programme. In the last three years, the programme received a considerable boost when Brazil, China, India and Mexico each agreed to fund 50 fellowships a year for young scientists in S&T-lagging countries. Specifically, the fellowships will allow students to pursue doctorate and post doctorate studies at institutions in sponsoring countries.

The bottom line of South-South cooperation is this: South-South cooperation in education and research is now flourishing and promises to become an even greater force for building a new generation of talented scholars in the years ahead.

When the Academy started its activities in the mid-1980s, North-South cooperation was not only limited in scope but flowed in only one direction – from the North to the South. In other words, virtually all scientific knowledge and innovation originated in the North and then was transferred, selectively, to the South. This amounted to a ‘lopsided’ partnership in which developing world scientists played a subservient role to their Northern counterparts.

Today, science in the North continues to dominate the global scientific agenda – 80 percent of all active scientists live and work in the North, which is home to less than 20 percent of the world’s population. Yet the nature of that relationship is slowly evolving due to several factors.

First, as noted above, the South's universities and research centres have gained a level of competence that now allows them to participate as true partners in international science initiatives. Indeed, in certain fields (for example, software development in India, nanotechnology in China and plant biotechnology in Brazil) the level of scientific inquiry now equals or exceeds the level of scientific inquiry in many countries in the North.

Second, there is growing recognition that efforts to solve today's critical challenges – ranging from global climate change to the need to meet the Millennium Development Goals (MDGs) – require international cooperation.

And third, indigenous knowledge is increasingly viewed not as a separate source of knowledge but as an important contribution to our understanding of the natural world and the ways in which human beings interact with it. With its deeply rooted indigenous systems of knowledge, the South is the primary source of expertise in this critical area of ideas and insights.

Together with its partner organizations, TWAS has played an important role in North-South cooperation. For example, TWAS's Visiting Scientist Scheme, which is co-sponsored by the International Council for Science (ICSU), UNESCO and the United Nations University's Institute for Advanced Studies (IAS), enables scientists from the North to visit institutions in the South for teaching and research collaboration.

The InterAcademy Panel on International Issues (IAP), which is a network of all merit-based academies in the world operating under the administrative wing of TWAS, has provided a forum for merit-based science academies from both the North and South to exchange ideas and learn from one another, as part of a larger effort designed to improve the ability of science academies to influence both public opinion and public policies within their countries and regions. IAP's efforts have led to the creation of regional science academy networks in Africa, Asia and the Americas.

In addition, IAP members have pursued cooperative programmes focusing on such global issues as science education and open access to scientific information.

The IAP science education programme seeks to reform science education on a global scale by encouraging hands-on enquiry-based learning, especially in primary and secondary schools. An interactive electronic portal has been created in cooperation with the International Council for Science (ICSU) highlighting national curricula in science education. The objective is to mobilize the world's science academies to improve science education in collaboration with scientists, teachers and educational authorities.

The bottom line of North-South cooperation is this: As scientific expertise in developing countries continues to grow and as critical economic, environmental and social problems become more global in scope, it is likely that North-South scientific cooperation will intensify in the years ahead – with positive impacts on science and education throughout the world.

In conclusion:

Science in the developing world will continue to evolve from its modest beginnings, where the focus was on building basic scientific capacity, to its current quest for full and equal partnership in the global scientific community – a journey that will ultimately confer upon the developing world's scientific community both the tangible rewards and ethical responsibilities that such a crucial voyage demands.

Reaching the destination, which we all seek, will require everyone to contribute to the voyage's success. This is a shared challenge and a shared responsibility in which both South-South and North-South cooperation in education and research may prove to be the best way to ensure success. This is one adventure where global cooperation will help ensure that since no one loses, everyone wins. It is indeed a matter of education, research and responsibility – broadly cast and broadly shared.

Thank you.

EDUCATION OF IMMIGRANTS
AND THEIR CHILDREN

GLOBALIZATION, IMMIGRATION, AND EDUCATION: RECENT US TRENDS

MARCELO SUÁREZ-OROZCO, CAROLA SUÁREZ-OROZCO

Over the last decade globalization has intensified worldwide economic, social, and cultural transformations. Globalization is structured by three powerful, interrelated formations: 1) the post-nationalization of production, distribution, and consumption of goods and services – fueled by growing levels of international trade, foreign direct investment, and capital market flows; 2) the emergence of new information, communication, and media technologies that place a premium on knowledge intensive work, and 3) unprecedented levels of world-wide migration generating significant demographic and cultural changes in most regions of the world.

Globalization's puzzle is that while many applaud it as the royal road for development (see, for example, Micklethwait & Wooldrige, 2000; Friedman, 2000, Rubin 2002) it is nevertheless generating strong currents of discontent. It is now obvious that in large regions of the world, globalization has been a deeply disorienting and threatening process of change (Stiglitz, 2002; Soros, 2002; Bauman, 1998). Globalization has generated the most hostilities where it has placed local cultural identities, including local meaning systems, local religious identities, and local systems of livelihood, under siege. Argentina is a case in point. After a decade of cutting-edge free market policies, the economy of the country that once was the darling of such embodiments of globalization as the International Monetary Fund and World Bank, imploded. At the beginning of the 20th century Argentina was one of the 10 wealthiest countries in the world yet it ended it in default and with a poverty rate of about over 40 percent of the population. By early 2003 an estimated 50,000 *cartoneros* were living off the cartons they gathered every night in trashcans in one of the world's most elegant cities, Buenos Aires. The Argentine case is but one of an unmistakable Latin American pattern of discontent with the promise of globalization, and a general trend against the failed market liberalization policies of the 1990s known as the 'Washington

Consensus'. The recent election to the presidency in Bolivia of the vocal anti-globalization indigenous leader Evo Morales is yet another instance of the discontent with globalization in the region. The same can be said of recent political developments in Venezuela, Uruguay, and Chile where along with Brazil and Argentina leftist regimes, of various political and ideological leanings, have consolidated power. In all of these cases there is a tendency to envision a very different relationship between economy and society than that prescribed by the Washington Consensus.

But it is a mistake to reduce globalization to economic process and market reforms. Globalization is first and foremost about movement. Its emerging regime – mobile capital, mobile production and distribution, mobile populations, and mobile cultures – is generating deep paradoxes. Some regions of the world such as East Asia seemed to have prospered immensely under globalization's regime (see Table 1). Yet in the Argentinas of the world the forces of globalization have conspired to intensify patterns of inequality and human suffering (see Dussel, 2000; Mittelman, 2000; see also Nader, 1993). The last decade of the 20th century witnessed vast economic growth in the rich nations, especially the United States, while roughly twenty-five percent of the population of the developing world continues to live in desperate poverty – with less than a dollar a day (see Table 1). China's meteoric integration into the global economy has both significantly reduced poverty *and* increased inequality (World Bank 2001: 1). On the other hand, throughout much of Latin America, globalization has simply increased income inequality (World Bank 2001: 1).

TABLE 1. Population living below US\$1 per day in developing countries 1990 and 1998.

	Number of people below US\$1 a day (millions)		Poverty Rate (%)	
	1990	1998 (estimate)	1990	1998 (estimate)
East Asia	452.4	278.3	27.6	15.3
Excluding China	92.0	65.1	18.5	11.3
South Asia	495.1	522.0	44.0	40.0
Sub-Saharan Africa	242.3	290.9	47.7	46.3
Latin America	73.8	78.2	16.8	15.6
Middle East/N. Africa	5.7	5.5	2.4	1.9
Europe & Cent. Asia	7.1	24.0	1.6	5.1
Total	1276.4	1198.9	29.0	24.0

Source: World Bank. Global Economic Prospects and the Developing Countries 2000. (2000).

There is a strong, somewhat amorphous and eclectic, anti-globalization ethos – ubiquitously named, articulated, and performed in varied contexts from Seattle, to Genoa, to Buenos Aires globalization is disorienting and threatening to large numbers of people the world over.

Yet, just as many hate what they see in globalization, others are seduced by its promise. Here is another paradox of globalization: as it continues to penetrate the local cultures of poor developing countries, even if it destabilizes local economies and livelihoods, it generates new desires and consumption fantasies that simply cannot be met by local economies. *These twin factors, globalization's uneven effects on the world economy and the emergence of a global imaginary of consumption are behind the largest wave of immigration in human history.* Globalization's paradoxical power is in that at once it manufactures despair and hope. But for millions of people, globalization's hope is to be realized elsewhere, as migrants.¹

In this Chapter, we examine recent conceptual and empirical work in the area of large-scale immigration within the paradigm of globalization – a paradigm that shall continue to attract the attention of social scientists alike in the decades to come (see Inda and Rosaldo 2002; Suárez-Orozco, Suárez-Orozco and Qin-Hilliard, 2003). First, we explore the parameters of the phenomena called globalization. Then we turn to the topic of large-scale immigration, with a focus on the recent American experience. Lastly, we examine some of the recent work on the education of immigrant children.

¹ But globalization's discontent also visits the 'other half', the wealthy advanced post-industrial democracies that have arguably benefited the most under its reign. In the advanced post-industrial democracies, the unprecedented, growing, and seemingly uncontrollable migratory flows generated by globalization over the last decade are, alas, experienced as threatening and disorienting to local cultural identities and sensibilities. This is the case in most of Western Europe, the United States, and Australia where anti-immigrant sentiment and xenophobia have emerged as potentially explosive political and social concerns. The general move to the political right in Europe over the last few years can be linked to the fears and anxieties generated by globalization, immigration, and crime. Item: somewhat monomaniacal anti-immigrant parties in Western Europe have gained momentum over the last decade – *the Vlams Bloc* in Belgium, *the Freedom Party* in Austria, *the People's Party* in Denmark, and of course in May 2002, *the Front National* in France. Item: Voters in California overwhelmingly approved Proposition 187 a new law that would deny illegal immigrants a host of publicly funded services – including schooling children. Item: In mid-2001 Australia denies a ship in distress carrying hundred of asylum seekers entry to its ports. To paraphrase Tolstoy, globalization is making all the families of the world unhappy the same way.

HUMAN MIGRATION

Large-scale immigration is a world phenomenon that is transforming Africa, Asia, Europe, and the Americas. Sweden, a country of about 9 million people now has roughly one million immigrants. Approximately 30 percent of Frankfurt's population is immigrant. Amsterdam by the year 2015 will be 50 percent immigrant. Leicester, England is about to become the first city in Europe where 'Whites' will no longer be the majority. Japan, long held as the exception to the North American and European rule that immigrant workers are needed to maintain economic vitality, is now facing a future where immigrants will play a significant role (Tsuda, 1996).

Globalization is the general backdrop for any understanding of the large scale of immigration. At the turn of the Millennium there are an estimated 185 million transnational migrants. Globalization has increased immigration in a variety of ways. First, transnational capital flows tend to stimulate migration because where capital flows immigrants tend to follow.² Second, the new information and communication technologies at the heart of globalization tend to stimulate migration because they encourage new cultural expectations, tastes, consumption practices, and life-style choices. Would-be immigrants imagine better opportunities elsewhere and mobilize to achieve them. Third, deeply globalized economies are increasingly structured around a voracious appetite for foreign workers. Fourth, the affordability of mass transportation has put the migration option within the reach of millions who heretofore could not do so – in the year 2000 approximately 1.5 billion airline tickets were sold. Fifth, globalization has stimulated new migration because it has produced uneven results.³

² See, *inter alia*, Sassen, Saskia, *The Mobility of Labor and Capital* (New York: Cambridge University Press, 1988).

³ In Zhou and Gatewood's (2000) excellent summary,

Globalization perpetuates emigration from developing countries in two significant ways. First, ... capital investments into developing countries transform the economic and occupational structures in these countries by disproportionately targeting production for export and taking advantage of raw material and cheap labor. Such twisted development, characterized by the robust growth of low skilled jobs in export manufacturing, draws a large number of rural, and particularly female workers, into the urban labor markets. ... Second, economic development following the American model in many developing countries stimulates consumerism and consumption and raises expectations regarding the standard of living. The widening gap between consumption expectations and the available standards of living within the structural constraints of the devel-

In recent years, there has been a renewed interest in the study of human migration (Suárez-Orozco, Suárez-Orozco and Qin-Hilliard, 2001, vol. 1). Indeed, during the last decades of the 20th Century, most major nation-states have seen the topic of immigration emerge as a significant issue with important public opinion, policy, and research implications. Migration, for the Latin *migrare* meaning to 'change residence', has been a defining feature in the making of humanity from our very emergence as a species in the African savanna. Social scientists have traditionally defined migration as the more or less permanent movement of people across space (Petersen, 1968). In the language of the social sciences people 'emigrate' out of one location and become 'immigrants' in a new setting.

The definition of migration as the more or less permanent movement of people across space suggests a number of important concerns. First is the matter of the relative permanence of immigrants in a new setting. For many, perhaps most, immigration represents a permanent move, for others it is a temporary state before eventually returning 'home'. A central feature of the great transatlantic immigration that took place between Europe and North and South America from the 1890's until the 1910's was the high proportion of people who returned to Europe. By some accounts, well over a third of all the Europeans who came to the Americas went back 'home' (Moya, 1998).

'Sojourners' represent yet another pattern of labor flow where temporality defines immigration. They are the large numbers of immigrants who move for well-defined periods of time, often following a seasonal cycle to eventually return home. Large numbers of migrant workers have followed this pattern – from African workers in the Sub-Saharan region to Mexican agricultural workers in California (Cornelius, 1992).

A third type is the constant shuttling back-and-forth that seems to define the lives of many new immigrants world-wide. In recent years, some scholars of immigration have argued that new transnational and global forces structure the journeys of immigrants in more complex ways that was previously seen. Anthropologists have been at the forefront of this conceptual and empirical work (see for example Basch, *et al.* 1994). This research

oping countries, combined with easy access to information and migration networks, in turn create tremendous pressure for emigration... Consequently, ... capital investments in developing countries have resulted in the paradox of rapid economic growth and high emigration from these countries to the United States (p. 10).

suggests that many immigrants remain substantially engaged (economically, politically and culturally) both in their newly adopted lands *and* in their communities of origin – moving ‘back and forth’ in ways seldom seen in previous eras of large-scale immigration (Suárez-Orozco, 1998).

The idea of immigration as movement across space also requires some elaboration. Immigration viewed anthropologically involves a change in residency and a change in community. Over the years, scholars have concentrated on two major types of large-scale migration: ‘internal migration’ (within the confines of a nation-state) and ‘international migration’ (across international borders). While many scholars would argue that the large-scale movement of people *within* a nation state is a phenomenon of a different order than the large-scale movement of people *across* international borders, the differences between these two broad types of migration are often quite blurred.

Internal migrants often share many characteristics with international migrants: many move from rural villages to urban centers, many experience linguistic and cultural discontinuities, and many face the same bureaucratic and legal restrictions and discriminations international migrants do. While much attention has been focused on international migration, most immigrants today are internal migrants staying within the confines of their nation-states – China, Egypt, and Brazil are countries that have experienced high levels of internal migration. Indeed, *contra* the impression that the majority of international migrants are heading to the developed world (i.e., Europe and North America), most immigration today is an intra-continental (i.e., within Asia, within Africa, etc.) phenomenon. China alone has an estimated 100 million internal migrants who, in many ways, experience similar circumstances as transnational migrants face when they move across countries (Eckholm 2001: 10). Some of the most important anthropological contributions to the study of immigration have focused on internal migration – see for example, Brandes (1975); Colson (1971); Morgan and Colson (1987); Scudder and Colson 1982; and Kemper (1977).

WHY DO PEOPLE MIGRATE?

Scholars of immigration have generally theorized patterns of migration flows in terms of economic forces, social processes, and cultural practices (Suárez-Orozco, Suárez-Orozco and Qin-Hilliard, 2001, vol. 1). Social scientists who privilege the economic causes of immigration have examined

how such variables as unemployment, underemployment, lack of access to credit, and especially, wage differentials are implicated in labor migration (Suárez-Orozco, Suárez-Orozco and Qin-Hilliard, 2001 vol. 2; Dussel, 1998). Anthropologist Jorge Durand working with an interdisciplinary team of colleagues has argued that international migration emerges as a risk management and diversifying strategy deployed by families and communities hoping to place their eggs in various territorial baskets (Massey, Durand and Malone, 2002). Changing cultural models about social standards and economic expectations have also been implicated in why people migrate (Moya, 1998). In many cases people migrate to actualize new consumption and life-style standards.

In nearly all advanced post-industrial economies, bifurcated labor markets have worked as a powerful gravitational field attracting large numbers of immigrants to work in the low wage, low status, and low-skilled secondary sector. Anthropologist T. Tsuda has noted that in Japan immigrant workers are sometimes called '3 k workers' for the Japanese words for 'dirty, demanding, and dangerous' jobs (Tsuda, 1996). When certain sectors of the opportunity structure are culturally coded as 'immigrant jobs', they become stigmatized and native workers tend to shun them almost regardless of wage dynamics. What would it take, in terms of wages, to make backbreaking work like strawberry picking in California, not an immigrant occupation?

Anthropological scholars of immigration have long maintained that cultural and social practices can generate – and sustain – substantial migratory flows. In many regions of the world, such as Ireland and Mexico, migration has been an adulthood-defining *rite de passage* (see Durand 1998). In some cases, people migrate because others – relatives, friends, and friends of friends – migrated before them. Indeed, the best predictor of who will migrate is who migrated before. Transnational family re-unification continues to be a critical vector in immigration today. In the year 1996, 915,900 immigrants were formally admitted in the US. Among them, 594,604 were family-sponsored immigrants (Suárez-Orozco, 1999). Since the early 1970's family reunification is one of the few formal ways to migrate into Europe (Suárez-Orozco, 1994).

A number of studies have examined how transnational migratory social chains, once established, can generate a powerful momentum of their own. Gender is deeply implicated in the making of these chains. Each immigrant lowers the costs associated with migration for those coming after her. Established immigrants lower the costs of subsequent immigration

because they ease the transition of new arrivals by sharing crucial economic, linguistic and cultural knowledge – about job openings, good wages, fair bosses, and dignified working conditions (see Waldinger 1997).

Other recent research highly relevant to anthropological concerns engages the theoretical debate over the role of immigrant workers in the global, post-industrial economy. In the context of the increasingly advanced knowledge-intensive economies of today are low-skilled immigrant workers simply anachronistic? Are immigrant workers a left over from an earlier era of production?⁴

⁴ Few topics have generated as much controversy than the economic consequences of large-scale labor migration. Do immigrants help or hurt the economies of their new countries? Do immigrants carry their own weight or do they represent a burden to citizens and other established residents? Do complex post-industrial economies need low-skilled immigrant workers or have they become redundant? Much of the recent scholarship on immigration and the economy has tended to focus on such concerns as the fiscal implications of immigration, the issue of immigrant competition with native workers, and the related issue of immigration and wages. Another important theme has been the economic integration and progress of immigrants over time (Suárez-Orozco, Suárez-Orozco and Qin-Hilliard, 2001 vol. 2; Borgas, 1999; Espenshade, 1997; National Research Council, 1997).

The research findings on the economic consequences of immigration are somewhat contradictory – some economists claiming that immigrants are a burden to tax payers and an overall negative influence especially on advanced post-industrial economies (Huddle, 1993) and others suggesting that they continue to be an important asset (Simon, 1989).

A recent study on the economic, demographic, and fiscal effects of immigration by the US National Research Council (NRC) concludes that in the American setting ‘immigration produces net economic gains for domestic residents’ (NRC, 1997: 3). Not only do immigrants ‘increase the supply of labor and help produce new goods and services’ but their presence also ‘allows domestic workers to be used more productively, specializing in producing goods at which they are relatively more efficient. Specialization in consumption also yields a gain’ (NRC, 1997: 3-4). The NRC estimates that the immigration-related ‘domestic gain may run on the order of \$1 billion to \$10 billion a year’ (NRC, 1997: 5). Given the size of the US economy (about 7 trillion dollars) it is clear that immigrants will neither ‘make it’ nor ‘break it’.

In fiscal terms the NRC data suggest, ‘Immigrants receive more in services than they pay in taxes’. (NRC, 1997: 7). The panel estimates that ‘if the net fiscal impact of all US immigrant-headed households were averaged across all native households the burden would be ... on the order of \$166 to \$226 per native household’.

The NRC study and other studies conclude that while immigration is a plus in overall economic terms, low-skilled new immigrants have contributed to a modest drop in the minimum wage of low skilled workers. They found that a five-percent drop in wages since 1980 among high school dropouts could be attributed to the new immigrants.

The comparative research of Social Anthropologist Gaku Tsuda and Political Scientists Wayne Cornelius on the use of immigrant labor in two paradigmatic post-industrial economic settings, San Diego County, California, USA and Hamamatzu, Japan, suggests a remarkable convergence in patterns of growing reliance on immigrant labor – in spite of rather marked differences in national context (see, for example, Cornelius, 1998). These data reveal a pattern of enduring, indeed voracious, post-industrial demand for immigrant labor. Cornelius concludes ‘As immigrants become a preferred labor force, employers do more to retain them, even in a recessionary economy’ (Cornelius, 1998: 128).

These data suggest that immigrant workers become desirable to a wide variety of employers for three basic reasons. First, immigrants are willing to do low-pay work that is boring, dirty, or dangerous with little or no prospects for upward mobility and that even in firms involving highly advanced technologies such work is critical. Second, employers perceive

There is, however, no evidence to suggest that new immigration has ‘hurt’ the economic condition of native minority workers such as African-Americans (NRC, 1997: 5).

Other studies examine the issue of the socioeconomic progress made by immigrant workers. The research of Dowell Myers tracks, over time and across generations, various dimensions of the economic adaptations of immigrant-origin men in a region of the world heavily impacted by immigration: the state of California. His work explores three sequential outcomes: educational attainment, occupational mobility, and earnings. In some fundamental ways, the recent Mexican immigrant experience in Southern California seems to replicate earlier patterns of immigrant adaptation. Yet in other ways, Myers findings suggest new – and disturbing – patterns.

Myers’ research reveals that upon arrival Mexican immigrant men tend to be poorly educated, work in low-skilled occupations, and earn low incomes. Myers finds that over time immigrant men make modest improvements in their economic condition. However, he also suggests that important changes occur across younger cohorts within the first generation. These changes, according to Myers, are strongly related to the much higher educational attainment of immigrant children. In other words, Myers finds an old story with a new set of characters: poorly educated immigrant men make modest gains over time but their children are able to attain more education in the new country.

Still, Myers data reveal a disturbing new pattern: among the children of immigrants higher education ‘does not appear to fully convert into higher occupational status or earnings; and higher occupational status translates even less well into higher earnings. These under-returns are most pronounced for the more recent arrivals from Mexico and for young cohorts, including native-born, both of whom newly entered the labor market in the 1970s and 1980s’. Myers concludes ‘The social implications of these falling returns to education and occupation are regrettable, because the declining reward system may discourage other’ immigrant children from investing in schooling as the route for status mobility (Myers, 1998: 188).

them quite favorably – as reliable, flexible, punctual, and willing to work overtime. Indeed, employers often prefer them to native-born workers. And third, immigrant transnational labor recruiting networks are a powerful method for ‘delivering eager new recruits to the employer’s doorstep with little or no effort on his part’ (*Ibid.*).

We have a reasonable understanding of how ‘love’ (family reunification) and ‘work’ drive immigration. On the other hand, the role of war and its relations to large-scale migratory flows has been generally neglected. Yet throughout history war and international migration have been closely linked. The threat of labor shortages during World War II led to the creation of temporary labor recruiting efforts to attract much needed immigrant workers to the United States (Calavita, 1992). The resultant ‘bracero’ program became a powerful force in building – alas, via family reunification – a Mexican migration momentum that eventually turned into the largest and most powerful immigration flow into the United States this century (Suárez-Orozco, 1998).

In the aftermath of WWII, many of the major Northwestern European democracies, such as Germany and Belgium developed ‘guest worker programs’ to recruit foreign workers – initially in southern Europe, and subsequently in the Maghreb region of North Africa and in Turkey (Suárez-Orozco, 1994). These programs came to an end in the early 1970s. Yet family-reunification and chain migration continued to bring immigrants from North Africa into Europe for years.

The Cold War both deterred immigration – because of strict Iron Curtain controls – and generated large population displacements. The robust Cuban diaspora in the United States can be traced more or less directly to the Cold War (Molyneux, 1999). The low-intensity warfare in Central America during the 1980’s generated the largest wave of emigration in the region’s history. As a result, there are now well over a million Central Americans immigrants in the United States (Suárez-Orozco, 1989). In the 1990s, the ongoing conflicts in Zimbabwe and Angola have generated large-scale migratory flows especially into South Africa. The recent war in Afghanistan has resulted in major population displacements – perhaps up to two million Afghans have been displaced from their homes.

Natural disasters have also displaced populations and started new migratory flows. The 1999 hurricanes, which devastated much of Central America, initiated significant flows of emigrants into North America.

IMMIGRANTS ADAPT TO CHANGE

Once settled in a new country, how do immigrants fare? The United States as the *ûir* country of immigration provides an interesting case study. It is the only advanced post-industrial democracy where immigration is at once history and destiny. The intensification of globalization in the last decade – arguably responsible for the greatest peacetime expansion of the US economy ever – coincided with the largest number of immigrants in history.⁵ By the year 2000 the ‘foreign-stock’ (foreign born plus the US born second generation) population of the United States was nearly 55 million people – over 34 million of them are foreign born.⁶ Two dominant features characterize this most recent wave of immigration: its intensity (the immigrant population grew by 60 percent in the 1990s) and the somewhat radical shift in the sources of new immigration (up to 1950, nearly 90 percent of all immigrants were Europeans or Canadians) today over 50 percent of all immigrants are from Latin America and over 25 percent are from Asia – the regions of the world where globalization has generated especially uneven results (see Chart 1, page 289).

Immigrants to the United States today are a heterogeneous population – defying easy generalizations (Suárez-Orozco and Suárez-Orozco, 2001). They include highly educated, highly skilled individuals drawn by the explosive growth in the knowledge-intensive sectors of the economy. They are more likely to have advanced degrees than the native born population (see Chart 2, page 289).

These immigrants come to the United States to thrive. Immigrants now, especially those originating in Asia, are among the best-educated and skilled folk in the United States. They are over-represented in the category of people with doctorates. Fully half of all entering physics graduate students in 1998 were foreign-born.⁷ Thirty-two percent of all scientists and engineers working in California’s Silicon Valley are immigrants (Saxenian, 1999). Roughly a third of all Nobel Prize winners in the United States have

⁵ See for example *Profile of the Foreign-Born Population in the United States: 1997* (Washington, DC: US Bureau of the Census, Current Population Reports, 1999).

⁶ See Portes, A. and R. Rumbaut, *Legacies: The Story of the Immigrant Second Generation* (Berkeley and London: University of California Press, 2001).

⁷ See ‘Wanted: American Physicists’, *New York Times*, July 23, 1999, p. A27. Of course not all of these foreign-born physics graduate students are immigrants – some will indeed return to their countries of birth while others will surely go on to have productive scientific careers in the US.

been immigrants. In 1999, all (100%!) US winners of the Nobel Prize were immigrants. Perhaps with the exception of the highly educated immigrants and refugees escaping Nazi Europe, immigrants in the past tended to be more uniformly poorly educated and relatively unskilled than they are today.⁸ Never in the history of US immigration have so many immigrants done so well so fast. Indeed, these immigrants are bypassing the traditional transgenerational modes of status mobility establishing themselves in the well remunerated sectors of the US economy within a generation.

At the same time, the new immigration contains large numbers of poorly schooled, semi-skilled or unskilled workers – many of them in the US without proper documentation (i.e., as illegal immigrants). In the year 2000, over 22 percent of all immigrants in the US had less than a ninth grade education (see Chart 3, page 290).

These are workers, many of them from Latin America, drawn by the service sector of the US economy where there seems to be an insatiable appetite for foreign folk. They typically end up in poorly paid jobs often lacking insurance and basic safeties. Unlike the low-skilled factory jobs of yesterday, the kinds of jobs typically available to low skilled immigrants today do not hold much realistic promise for upward mobility.⁹ These immigrants tend to settle in areas of deep poverty and racial segregation.¹⁰ Concentrated poverty is associated with the ‘disappearance of meaningful work opportunities’.¹¹ When poverty is combined with racial segregation, the outcomes can be dim (Massey & Denton, 1993: 3).

IMMIGRATION AND EDUCATION

Immigrants entering the educational system are extraordinarily diverse and their experiences resist facile generalizations. While the ‘old’ immigrants who arrived to the US at the turn of the 20th century largely originated from a dozen or so countries, the ‘new’ immigrants arrive from hun-

⁸ See for example, George Borjas, ‘Assimilation in Cohort Quality Revisited: What Happened to Immigrant Earnings in the 1980s?’, *Journal of Labor Economics* 13, n. 2, pp. 211-245.

⁹ See for example Alejandro Portes, *The New Second Generation*, especially pp. 1-15.

¹⁰ See Gary Orfield, ‘Commentary’, in Marcelo M. Suárez-Orozco and Mariela Paez, eds. *Latinos: Remaking America* (Berkeley and London: University of California Press, 2002).

¹¹ See William Wilson, *When Work Disappears: The World of the New Urban Poor* (New York: Vintage Books, 1997).

dreds of points of origin. New immigrants add new threads of cultural, linguistic, and racial difference to the American tapestry of diversity. Some are the children of highly educated professional parents, while others have parents who are illiterate, low skilled and struggling in the lowest paid sectors of the service economy. Some have received schooling in exemplary educational systems while others arrive from educational systems that are in shambles. Some families are escaping political, religious, or ethnic persecution; others are motivated by the promise of better jobs and the hope for better educational opportunities. Some are documented migrants while others are in a documentation limbo. Some come with the intention to settle permanently while others engage in transnational strategies living both 'here and there'. Some arrive in well-established receiving communities with dense informational and tutoring networks that ease the entry of immigrant youth into the new educational system while others move from one migrant setting to another forcing students to often change schools. The educational outcomes will thus vary substantially depending upon the specific constellation of resources and the ethos of reception.

How immigrant youth fare academically has long term implications for their future wellbeing. While at the turn of the 20th century there were occupational avenues that allowed social mobility for migrants who had little education, the new economy is largely unforgiving to those who do not achieve post-secondary education. Immigrants who are poorly unschooled or unskilled will encounter dim odds in today's economy. Many will be facing a life below the poverty line in the lower rungs on the service sector of the economy. Today more than ever, schooling processes and outcomes are a powerful barometer of current as well as future psycho-social functioning.

Immigrants defy easy generalizations in terms of educational outcomes. Some outperform their native born peers. Children of immigrants are often the valedictorians of their schools and they tend to be over-represented as the recipients of prestigious scholarly awards. Other immigrant youth demonstrate persistent school-related problems and high drop-out rates. These immigrants tend to be 'overlooked and underserved' particularly when they enter US schools at the secondary level (Urban Institute, 2001). Findings from a number of recent studies suggest that while some are successfully navigating the American educational system, large numbers struggle academically, leaving schools without acquiring the tools that will enable them to function in the highly competitive knowledge intensive economy.

In addition to a pattern of variability of performance among diverse immigrant groups, some studies have identified a counter-intuitive trend in

data from a variety of disciplines. These studies have shown that newly arrived students from Latin America, the Caribbean, and Asia display highly adaptive attitudes and behaviors to succeed in school. Yet, the longer some immigrant youth are in the United States, the more negative they become in terms of school attitudes and adaptations. Rumbaut and Portes surveyed more than 5,000 high school students comparing grade point averages and aspirations of first and second generation students. They found that length of residence in the United States was associated with declining academic achievement and aspirations. Research by Steinberg, Brown, and Dornbusch based on a national study of over 20,000 adolescents uncovered a similar trend of adverse academic and health trajectories across generations.

Most of the studies suggesting academic and health-related declines over time have relied on cross-sectional (cross-generational) data. Data from the Longitudinal Immigrant Student Adaptation (LISA) study we co-directed at Harvard (1997-2003) assessed the academic performance and engagement of recently arrived immigrant youth and then examined changes over time. Quite strikingly, the Grade Point Average (GPA) of students coming from Mexico, Central America, the Dominican Republic, and Haiti all declined slightly but in a statistically significant manner (and while a similar trend emerged for the Chinese-origin students, the decline did not reach significance). The GPA of immigrant boys declined significantly more than that of girls for all groups. For both girls and boys, their grades in the first two years are considerably higher than their grades in the last three years. The second year both girls and boy's GPA peaked and from the third year on, both girls and boys experience steady decrease in their GPA. And girls consistently have statistically significant higher GPA than boys throughout the five-year period (see Chart 4, page 290).

These data and other data suggest that the new immigrant experience may complicate the predictions of unilineal 'assimilation' models that argue that over time and across generations, immigrants tend to do substantially better eventually reaching parity with the mainstream population. Exposure to certain aspects of American socio-economic structure and culture today appear to be negatively associated with academic, physical, and psychological well-being of immigrant youngsters.

In this chapter we will explore the factors implicated in the variability and decline in schooling performance and social adaptation of immigrant children. We do so by examining interdisciplinary contributions to a topic of growing importance.

WHY CONTEXTS MATTER

Educational Background

Immigrant youth arrive into American neighborhoods and schools with varied educational skills. On one end of the spectrum, we find youth from upper-class urban backgrounds. These youth are typically highly literate, and have well-developed study skills. Their more educated parents are well-equipped to guide their children in how to study, access data and information, structure essays, and can provide necessary resources including additional books, a home computer, and tutors. In sharp contrast are those youngsters whose parents have little or no formal educational experience. Equally disadvantaged are the children who arrive from countries with compromised educational infrastructures who have missed critical years of classroom experience and often cannot read and write in their native language. Such varied experiences and backgrounds will have profound implications for their transition to the US setting.

Poverty

Although some immigrant youth come from privileged backgrounds, large numbers of immigrant youth today must face the challenges associated with poverty. Immigrant children are more than four times as likely as native-born children to live in crowded housing conditions and three times as likely to be uninsured. Poverty has long been recognized as a significant risk factor for educational access. Not only does it limit opportunities but it frequently coexists with a variety of other factors that augment risks – such as single-parenthood, residence in violent neighborhoods saturated with gang activity and drug trade, as well as schools that are segregated, overcrowded, and understaffed. Children raised in circumstances of poverty are also more vulnerable to an array of psychological distresses including difficulties concentrating and sleeping, anxiety, and depression as well as a heightened propensity for delinquency and violence all of which have implications for educational outcomes.

Segregated Neighborhoods and Schools

Where immigrant families settle will strongly shape the immigrant journey and the experiences and adaptations of children. Latino immigrants in particular tend to settle in deeply segregated and impoverished

urban settings – indeed Latino-origin youth are now the most segregated students in American schools. In such neighborhoods with few opportunities in the formal economy, informal and underground activities tend to flourish. Immigrants of color who settle in predominantly minority neighborhoods will have virtually no direct, systematic, and intimate contact with middle-class White Americans which in turn affects a host of experiences including cultural and linguistic isolation from the mainstream.

Segregated and poor neighborhoods are more likely to have dysfunctional schools characterized by ever-present fear of violence, distrust, low expectation, and institutional anomie. These schools typically have limited and outdated resources and offer an inferior education. Buildings are poorly maintained and as a rule, classrooms are over-crowded. Textbooks and curriculum are outdated; computers are few and obsolete. Many of the teachers may not have credentials in the subjects they teach. Clearly defined tracks sentence immigrant students to non-college destinations. Lacking English skills, many immigrant students are enrolled in the least demanding and competitive classes that eventually exclude them from courses needed for college. Such settings undermine students' ability to sustain motivation and academic engagement.

Undocumented Status

LISA data suggest that undocumented students often arrive in the United States after multiple family separations and traumatic crossings. Once settled, they may continue to experience fear and anxiety about being apprehended, being again separated from their parents, and being deported. Such psychological and emotional duress can take their toll on the academic experiences of undocumented youth. Undocumented students with dreams of getting graduating from high school and going on to college will find that their legal status stands in the way of their access to post-secondary education.

Seasonal Migrants

Data suggest that approximately 600,000 children travel with their migrant parents in the US each year. Youth in seasonal migrant families face particular challenges. They experience multiple moves, frequent interruptions in schooling, as well as harsh working and living conditions. Migrant children are the least likely to be enrolled in school. The lack of continuity in schooling (because of interruptions during the school year, the difficulty of transferring school records, health problems, and lack of English language skills) contributes to their low attendance and to the high

dropout rate among seasonal migrant children. The dropout rate after 6th grade among these children is twice the national average and typically they only reach the 8th grade.

Late-Entry into American Schools

Immigrant youth who arrive during adolescence tend to be at a particular disadvantage in their schooling. Although many immigrants arrive during their secondary school years, most school based programs targeting immigrant youth are designed for primary school students. Many immigrants who arrive in adolescence must overcome several obstacles. Frequently, they are not awarded credits for previous course work completed in their countries of origin. They will face high-stakes testing not designed with second language learners in mind. Older immigrant youth may have had long gaps in their previous schooling and enter schools far behind their age levels. Not surprisingly the dropout rates among older immigrant youth is disconcertingly high.

English Language Acquisition

Most immigrant youth are second language learners. English language difficulties present particular challenges for optimal performance on high stakes tests. Performance on tests such as the TAAS in Texas, the Regents exam in New York, or the MCAS in Massachusetts has implications for college access. SAT's are also a challenge that serves to limit access to the more competitive colleges. Second language acquisition issues can serve to mask actual skills and knowledge particularly around vocabulary as well as subtle 'trick questions' using double negatives. Even when immigrant students are able to enter colleges while they are still refining their language skills, they may miss subtleties in lectures and discussions. They may read more slowly than native speakers and may have difficulty expressing more complex thoughts on written assignments. This is likely to bring down their grades in turn impacting access to graduate or professional schools.

Access to Higher Education

Many immigrants who complete high school graduate without the necessary credentials to be accepted into college. They are less likely than their native-born counterparts to have taken advanced science and mathematics courses. Among those who perform well academically, immigrants of Latino

origin are least likely to have taken the SAT or to receive high scores on the test; they are also least likely to apply to college. Even when immigrant origin students have the necessary academic credentials to enter college, many encounter strong socio-economic and structural barriers that jeopardize their college attendance. They tend to be awarded less financial aid, are more likely to attend community college than four-year college, to study part time rather than full time, and to work rather than to take out student loans. These factors limit their ability to earn a bachelor's degree, and many of them leave college before completing their degree. Although college enrollment rates for high school graduates in the past decades have risen for both white and black students there has been no consistent growth for Latino students (two-thirds of whom are of immigrant origin). They are also less represented in graduate school than all other racial/ethnic group and are less likely to receive financial aid to support their graduate studies.

ACADEMIC ENGAGEMENT

Many immigrant youth face a myriad of structural obstacles that all too often truncate their academic trajectories. There is no doubt that such obstacles play a critical role in academic outcomes. Focusing exclusively on such structural issues, however, overlooks the critical role of agency in the schooling experience.

In order to perform optimally on the educational journey, the student must be engaged in learning. When a student is engaged, she is both intellectually and behaviorally involved in her schooling. She ponders the materials presented, participates in discussions, completes assignments with attention and effort, and applies newfound knowledge to different contexts. Conversely, when academically disengaged, the student is cognitively bored, learns sub-optimally, and tends to receive lower grades than he is capable. In its most extreme form, academic disengagement leads to a pattern of multiple failures. In such cases, the student has stopped engaging in his schooling – he is habitually truant, rarely completes assignments, and shows little or no cognitive arousal by the materials presented.

We claim that academic engagement has three discrete dimensions – cognitive, behavioral, and relational. Cognitive engagement refers to the student's intellectual or cognitive involvement with schoolwork. This dimension includes both the elements of intellectual curiosity about new ideas and domains of learning as well as the pleasure that is derived from the process of mastering new materials. Behavioral engagement refers to the degree to

which students actually engage in the behaviors necessary to do well in school – attending classes, participating in class, and completing assignments. Relational engagement is the degree to which students report meaningful and supportive relationships in school with adults as well as peers. These relationships can serve both emotional as well as tangible functions.

Cognitive and behavioral engagements are viewed as the manifestations of engagement, while relational engagement is viewed as mediator of these engagements. Relational supports can serve to mediate the effects of family and contextual risks on individual attributes.

LISA data suggest that patterns of academic engagement have implications for academic outcomes among immigrant youth – with relational engagement playing an important role in the academic trajectories of immigrant students. Academic engagement is a particularly important dimension of schooling as it would appear to be malleable and hence a promising level for intervention.

SOCIAL DISPARAGEMENT, IDENTITY, & ACADEMIC OUTCOMES

Immigrant youth who are subject to negative expectations will suffer in their academic performance. Cross-cultural data on a variety of socially disparaged immigrant minorities in a number of contexts suggest that social disparagement adversely affects academic engagement. The evidence suggests that the social context and ethos of reception plays an important role in immigrant adaptation. Ogbu and his colleagues have done seminal work in the comparative study of immigration, minority status, and schooling in plural societies. Inspired by George De Vos' comparative studies of social stratification and minority status, Ogbu argued that long term, cross generational patterns of structural inequality and social disparagement tend to generate cultural models and social practices that seem to further remove some minorities from investing in schooling as the primary strategy for status mobility.

In cases where racial and ethnic inequalities are highly structured, such as for Algerians in France, Koreans in Japan, or Mexicans in California, social disparagement often permeates the experience of many minority youth. Members of these groups are not only effectively locked out of the opportunity structure (through segregated and inferior schools, and work opportunities in the least desirable sectors of the economy) but also commonly become the objects of stereotypes of inferiority, sloth, and proneness to violence – stereotypes then used to justify the sense that they

are less deserving of partaking in the opportunity structure. Facing such charged attitudes socially disparaged youth may come to experience the institutions of the dominant society – and most specifically its schools – as alien terrain reproducing an order of inequality. While all groups face structural obstacles, not all groups elicit and experience the same attitudes of social disparagement. Some immigrant groups elicit more negative attitudes – encountering a more negative social mirror – than others do. In US public opinion polls, for example, Asians are seen more favorably and Latinos more negatively.

In past generations, assimilationist trajectories demonstrated a correlation between length of residence in the US and better schooling, health, and income outcomes. While assimilation was a goal and a possibility for immigrants of European origin resulting in a generally upwardly mobile journey, this alternative may be more challenging for the new immigrants of color. Indeed, the increasing ‘segmentation’ in American economy and society seems to be shaping new patterns of immigrant adaptation

A number of theorists of the new immigration have examined how race and color are complicating the process of adaptation among new immigrants. Mary Waters data suggests that West Indians are shocked by the level of racism against blacks in the US. Though they arrive expecting structural obstacles (such as discrimination in housing and job promotions) they find particularly distressing the intensity of both overt and covert prejudice and discrimination. Yet these black immigrants tend to share a number of characteristics that are protective and that contribute to their relative success in the new setting. Their children, however, after encountering sustained experiences of social disparagement, racism, and limited economic opportunity, begin to respond in cultural ways similar to African Americans who have faced generations of exclusion and discrimination.

While cross-sectional data have been used to identify this transgenerational pattern, data from the LISA study suggest that among many immigrant youth of color, a process of racialization that further excludes many immigrant youth from academic options is unfolding at a rapid pace within a few years of migration. How is identity implicated in these rapid shifts?

Immigrant Identities

Some immigrant origin youth develop and maintain a co-ethnic identity. Some do so because they have limited opportunity to make meaningful contact with other groups in the new culture. Others may be responding to an

understanding that other groups, such as native minorities, are even more socially disparaged than they are as immigrants. Caribbean immigrants may distinguish themselves from African Americans in an attempt to ward off social disparagement and seek better opportunities.

Other immigrant youth may develop an adversarial stance constructing identities around rejecting – after having been rejected by – the institutions of the dominant culture. These children of immigrants are responding in similar ways to that of other marginalized youth – such as many inner-city, poor African-Americans or Puerto Ricans, Koreans in Japan, or Algerians in France. Likewise, gazing back to previous waves of immigration, many of the disparaged and disenfranchised second-generation Italian-American, Irish-American, and Polish-American adolescents, demonstrated a similar dynamics – including the development of elaborate delinquency-oriented gangs.

Like other disenfranchised youth, children of immigrants who develop adversarial identities tend to encounter problems in school, tend to drop-out, and consequently face unemployment in the formal economy. Among youth engaged in adversarial styles, speaking the mainstream language of the culture and doing well in school may be interpreted as a show of hauteur and as a wish to ‘act White’. When immigrant adolescents acquire cultural models and social practices that view doing well in school as an act of ethnic betrayal, it becomes problematic for them to develop the behavioral and attitudinal repertoire necessary to succeed in school.

The children of immigrants who are not able to embrace their own culture and who have formulated their identities around rejecting aspects of the mainstream society may be drawn to gangs. In the absence of productive academic engagement and meaningful economic opportunities, gang membership can provide a sense of identity and cohesion for marginal youth during a turbulent stage of development. Adversarial identities when combined with gang-orientation severely compromise the future opportunities of immigrant origin youth who are already at risk of school failure because of poverty, segregation, and discrimination. Such immigrant origin youth face greater odds of imprisonment: roughly half of all youth under the supervision of the California Youth Authority (for homicide, robbery, assault, burglary, theft, rape, drugs, arson, kidnap/extortion) come from immigrant origin Latino homes, the delinquency rate among the youth of Korean origin in Japan is four times the rate among majority Japanese, and approximately half of the French prison population is of north African immigrant origin.

Ethnic Flight

The children of immigrant origin youth who shed their cultures structure their identities most strongly to identify with the dominant mainstream culture. Taking ethnic flight, these youth may feel most comfortable spending time with peers from the mainstream culture rather than with their less acculturated peers. For these youth, learning to speak standard English serves not only an instrumental function of communicating; it also becomes an important symbolic act of identifying with the dominant culture. Among these youth, success in school may be seen not only as a route for individualistic self-advancement, but also as a way to symbolically and psychologically move away from the world of the family and the ethnic group. The rapid abandonment of the home culture implied in ethnic flight almost always results in the collapse of the parental voice of authority. Furthermore, lack of group connectedness can result in feelings of anomie and alienation.

Identification with the mainstream culture often results in weakening of co-ethnic ties. These young people frequently are alienated from their less acculturated peers; they may have little in common or may even feel they are somewhat superior to them. While they may gain entry into privileged positions within mainstream culture, they will still have to deal with issues of marginalization and exclusion. They may find their peer group unforgiving of any behaviors that could be interpreted as 'ethnic betrayal'. It is not necessary for the child of an immigrant to consciously decide to distance himself from his culture.

In an earlier era of scholarship, this style of adaptation was termed 'passing'. While there were gains for the children of immigrants who managed to 'disappear' into the mainstream culture, there were also hidden costs – primarily in terms of unresolved shame, doubt, and even self-hatred. While 'passing' may have been a common style of adaptation among those who phenotypically 'looked' like the mainstream, it is not easily available to today's immigrants of color who visibly look 'Other'.

Transcultural Identities. In between the co-ethnic and ethnic flight gravitational fields, we find the large majority of children of immigrants. The task of immigration for these children is the crafting a transcultural identity. These youth creatively fuse aspects of two or more cultures – the parental tradition and the new culture or cultures. In so doing, they synthesize an identity that does not require them to choose between cultures –

rather they are able to develop an identity that incorporates traits of both cultures all the while fusing additive elements.

Among these youth the culturally constructed social strictures and patterns of social control of their immigrant parents and elders maintain a degree of legitimacy. Learning standard English and doing well in school are viewed as competencies that do not compromise but enhance their sense of who they are. These youth network, with similar ease, among members of their own ethnic group as well as with students, teachers, employers, colleagues, and friends of other backgrounds. A number of studies suggest that immigrant youth that manage to forge transcultural identities tend to be more successful in schools.

Many who successfully 'make it' perceive and appreciate the sacrifices loved ones have made to enable them to thrive in a new country. Rather than wishing to distance themselves from their group, these youth come to experience success as a way to give back to their parents, siblings, peers, and other less fortunate members of the community. Transcultural identities adaptively blend the preserving of the affective ties of the home culture with the acquisition of instrumental competencies required to cope successfully in the mainstream culture. Transcultural identities are most adaptive in this era of globalism and multiculturalism serving both the individual as well as society at large. By acquiring competencies that enable them to operate within more than one cultural code, these youth are often effective cultural interpreters and bridge-builders between disparate groups.

SOCIAL CONTEXTS OF LEARNING

Healthy social support networks provide a number of functions that are linked to better adjustment. Companionship, a basic human need, serves to maintain and enhance self-esteem and provides acceptance, approval, and a sense of belonging. Instrumental social support provides individuals and their families with tangible aid (such as running an errand or making a loan) as well as guidance and advice (including information, job and housing leads). These instrumental supports are particularly critical for disoriented immigrant newcomers. Indeed, LISA data demonstrates the critical role relational engagement plays in moderating negative influences such as school violence and low self-esteem.

Affiliative Motivations

For many immigrants, social relations play a critical role in initiating and sustaining motivations. While for mainstream white American students achievement is often motivated by an attempt to gain independence from the family, immigrant students are typically highly motivated to achieve *for* their families. Further, we have found that Latino students (more so than for Asian or Caribbean students) perceive that receiving the help of others is critical to their success.

The Family

Family cohesion and the maintenance of a well-functioning system of supervision, authority, and mutuality, are perhaps the most powerful factors in shaping the well-being and future outcomes of all children. For immigrant families, extended family members – grandparents, godparents, aunts, uncles, and cousins, are critical sources of tangible instrumental and emotional support.

Families can support children's schooling by maintaining a value of education and establishing a standard of expectation. Families establish expectations about appropriate behaviors and attitudes vis-à-vis school authorities and peer interactions. They can also actively scaffold children as they complete assignments. Immigrant parents who work long hours and may have limited schooling are at a distinct disadvantage in this regard. Immigrant parents are often unable to tangibly support their children in ways that are congruent with American cultural models and expectations. Further, many come from traditions that revere school authorities and expect parents to keep a distance from the day-to-day workings of their child's education. This can lead to misunderstandings as such view stands in sharp contrast to US expectations of parental involvement.

Communities & Community Organizations

Because no family is an island, family cohesion and functioning are enhanced when the family is part of a larger community displaying effective forms of what Felton Earls has termed 'community agency'. Culturally constituted patterns of community cohesion and supervision can 'immunize' immigrant youth from the more toxic elements in their new settings. When communities are cohesive and when adults within the community

can monitor youngsters' activities, they will tend to do better. Children who live in such communities are less likely to be involved with gangs and delinquency and are more focused on their academic pursuits.

Youth-serving organizations, much like ethnic-owned businesses and family networks can enrich immigrant communities and foster healthy development among its youth through the support they provide to parents and families. Such urban sanctuaries, often affiliated with neighborhood churches or schools, provide youth out-of-school time that is not spent in isolation, unsupervised, or on the streets with one's peers. These programs can provide safe havens from the pressures of the streets or 'second homes' settings. Community program staff can serve as 'culture brokers' for youth 'bridging' the disparate norms in place in children's homes and those in place at school. Adults who work in community programs can provide tutoring, educational guidance, advice about the college application process, and job search assistance, information which is often inaccessible to immigrant youth whose parents have not navigated the academic system in the US and who attend schools with few guidance counselors. Such programs can aid in counteracting embittered school personnel and toxic inner city schools' impact on the educational trajectories and academic achievement of immigrant youth.

Mentoring Relationships

In nearly every story of an immigrant youth's success there is a caring adult who took an interest in the child and became actively engaged in her life. Connections with non-parent adults – a community leader, a teacher, a member of the church, a coach – are important in the academic and social adaptation of immigrant adolescents. These youth are often undergoing profound shifts in their sense of self and are struggling to negotiate changing circumstances in relationships with their parents and peers. Protective relationships with nonparent adults can provide immigrant youth with compensatory attachments, safe contexts for learning new cultural norms and practices, and information that is vital to success in schools.

Mentoring relationships may have special implications for immigrant youth as during the course of migration, loved ones are often separated from one another and significant attachments are ruptured. Mentoring relationships can give immigrant youth an opportunity to be involved in reparative relationships engendering new significant attachments. Since immigrant adolescents' parents and other adult relatives may be unavail-

able due to long work hours or emotional distress, the guidance and affection of a mentor may help to fill the void created by parental absence. The mentor, as an adult who has been in the United States longer than the protégé, can also provide information about and exposure to American cultural and educational institutions, and help as the adolescent negotiates developmental transitions. If the mentor is of the same ethnic background as the protégé, he or she can interpret the rules of engagement of the new culture to parents and hence, help to attenuate cultural rigidities. Furthermore, bicultural mentors can serve as role models in the challenging process of developing a bicultural identity, exemplifying the ways in which elements of the ethnic identity can be preserved and celebrated even as features of the more mainstream culture of the United States are incorporated into youth's lives.

Peer Relationships

Peers can also provide important emotional sustenance that sustain and support the development of significant psychosocial competencies in youth. In a variety of ways, peers can specifically serve to support *or* detract from academic engagement. By valuing (or devaluing) certain academic outcomes and by modeling specific academic behaviors, peers establish the 'norms' of academic engagement. Peers may further support academic engagements through conversations and discussions where ideas are exchanged. Peers tangibly can support academic engagement by clarifying readings or lectures, helping one another in completing homework assignments, and by exchanging information (about SAT's, helpful tutors, volunteer positions, and other college pathway knowledge). Because, however, immigrant youth often attend highly segregated poor schools, they may have limited access to knowledgeable networks of peers.

Taken together, these networks of relationships can make a significant difference in educational outcomes. They can serve to help immigrant youth develop healthy bicultural identities, engender motivation, and provide specific information about how to successfully navigate schooling pathways.

Immigrant origin youth are the fastest growing sector of the student population in a variety of advanced post-industrial democracies. This is one of the results of globalization. The preponderance of evidence suggest that they arrive sharing an optimism and hope in the future that must be cultivated and treasured – almost universally they recognize that schooling is

the key to a better tomorrow. Tragically, over time however, many immigrant youth, especially those enrolling in impoverished and deeply segregated schools, face negative odds and uncertain prospects. Too many leave our schools without developing and mastering the kinds of higher order cognitive skills and cultural sensibilities needed in today's global economy and society. Those who do acquire the skills are often rejected in the labor market due to racial prejudice. The future of our world will in no small measure be tied to the constructive harnessing of the energies of these new young players on the global stage.

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WHAT CAN WE DO TO IMPROVE THE EDUCATION OF CHILDREN FROM DISADVANTAGED BACKGROUNDS?

LOUIS-ANDRÉ VALLET

As soon as we consider education as a public good that is beneficial, not only to private individuals, but also to the organisations in which they work, the neighbourhoods in which they live, and, more generally, economy and society as a whole, serious questions arise about the *allocation of education*, that is to say, about the extent to which education is evenly or unevenly distributed among individuals. In this paper, I will not deal with educational inequalities that exist between individuals who are citizens of different countries, but I will examine educational inequalities *within* societies, more precisely within western industrial or post-industrial, that is to say, *affluent* societies.

In the first part of the paper, I will present a comprehensive account of research efforts that have been mainly pursued over the last three decades in the context of the Research Committee on Social Stratification and Social Mobility of the International Sociological Association. Using large-scale data sets from nationally representative statistical surveys, researchers have systematically examined the extent, the structure and the temporal dynamics of inequality of educational opportunity (hereafter IEO) between adult men and women who have been brought up in different social backgrounds in the sense of different social *classes* or different socio-economic *milieus*. Briefly speaking, within modern western societies, quantitative and empirical sociologists have documented the existence of relatively large and persistent inequalities in educational attainment according to social and cultural origins. During the 1980s and the early 1990s sociologists have indeed been impressed by what appeared then as a constancy or quasi-constancy of IEO between birth cohorts spanning several decades. This is certainly a striking and counterintuitive result: a considerable

expansion in the provision of education took place in many western societies after the Second World War; however, it left virtually unaffected the general level of inequality in the allocation of education between adults from different backgrounds. I will therefore outline the main theoretical argument along which sociologists nowadays explain that inertia in IEO. And I will also evoke the most recent scientific results in the same field. Taking advantage of recent progress in statistical modelling, we are now able to discern modest temporal change in IEO within at least a few countries. We can therefore try to illuminate the institutional and historical circumstances that prevailed during periods characterised by a process of democratisation in education.

In the second part of the paper, using as a background this broad picture of educational inequalities related to ascribed characteristics, I will examine the situation of immigrant children and children of immigrants in the educational systems of the same societies. For that purpose, I will rely on large-scale longitudinal surveys, that is to say, statistical surveys that follow up representative samples of pupils over their school careers. On the basis of such surveys, it is therefore possible to assess how children of immigrants achieve in the educational system of the welcoming societies by systematically comparing their performances and attainments with those of children from native, that is to say, non-immigrant families. In many western societies, immigrant children and children of immigrants possess socio-demographic characteristics that, according to sociological research, are predictors of lower achievement: they disproportionately belong to manual worker families; their parents usually got less formal education than parents in native families; and they quite often have more siblings than children from non-immigrant families – a characteristic that is also on average associated with less prominent educational achievement. Not surprisingly, in those societies, immigrant children and children of immigrants considered as a whole are at a disadvantage in their educational careers when they are compared to the entire group of children from native families. This is *not*, however, the whole story. In at least some societies, that conclusion is actually reversed when statistical controls for social background and family environment are introduced in the analysis. In other words, children of immigrants do *better* in terms of their school careers than native children with the same, often disadvantaged, social background and family environment (notably social class, father's and mother's education and number of siblings). Finally, there are serious grounds for believing that the latter result can be explained by the educa-

tional aspirations of immigrant families: in those societies and *ceteris paribus*, they express more ambitious school career plans for their children than native families and these higher aspirations play a part in the development of their offspring's school careers. However, in some other societies, research results also based on large-scale representative surveys are strikingly different: even after controlling for social background and family environment, children of immigrants suffer from a significant and persistent disadvantage in the development of their school careers. The fact that children of immigrants, sometimes from the same origin, achieve differently in the school system of different societies therefore suggests that national contexts and/or the specific organization of schooling in various countries play a part in the educational attainment of immigrants' children compared to that of native ones. Considering that children of immigrants often are children from disadvantaged backgrounds, that again opens room to think about what can be done to try to improve the education of the latter. This will be the subject of my concluding section.

1. PROGRESS AND CURRENT STATE OF THE ART IN COMPARATIVE EDUCATIONAL STRATIFICATION RESEARCH

Over the twentieth century dramatic increases in the supply of formal education have occurred for successive birth cohorts in western industrialised societies, i.e. these societies have been characterized by a considerably enlarged *distribution* of schooling. In most of them, educational reforms have also been implemented during the second half of the century to provide children from all social backgrounds with increased education and to promote equality of educational opportunity. Sociologists have therefore tried to assess whether or not educational attainment has gradually become less dependent on ascribed individual characteristics (especially social origins) and whether or not a less unfair *allocation* of schooling has progressively emerged in modern western societies.

Several Generations of Comparative Educational Stratification Research

Temporal dynamics of socio-economic IEO has in fact been studied using various conceptual and quantitative frameworks. As a consequence, several generations of empirical research can be distinguished. Till the end of the 1970s the linear regression model of educational attainment was the

unique approach. Using a metric dependent variable to measure the final amount of schooling, the first period typically answered the following question: what has been the change over time in the effect of social origin variables on the average number of school years completed? Over the years it has become more and more acknowledged that the enlarged distribution of schooling in modern societies has resulted in a historical decline in the dependence of educational attainment on social origins, as evaluated with linear regression models. In France for instance, it has been assessed that considering simultaneously father's and mother's socio-economic group, father's and mother's highest diploma and gender accounts for 32.3% of the total variance in education for men and women born before 1939, but for 20.3% only for men and women born between 1964 and 1973 (Duru-Bellat & Kieffer, 2000). More generally, in a comparative project that reported linear regressions cohort by cohort for eight nations, a downward trend was apparent in the proportion of variance explained by background variables in six of the eight societies (Treiman & Ganzeboom, 2000).

Thus, the first generation of educational stratification research rather clearly established that the educational expansion in a society results in a weaker dependence of educational attainment on social origins. However, in the early 1980s, two shortcomings of this approach became apparent. First, the linear regression model of years of education on social origin conflates and confounds changes in the distribution of education with changes in the allocation of education. More precisely, it conflates and confounds changes in the marginal distributions caused by educational expansion with changes in the underlying association between origin and educational attainment, normally conceptualised as the best measure of inequality of opportunity. And sociologists progressively became more interested in the latter aspect, that is, the 'pure' association between social origin and education, *evaluated net of the educational expansion*. A second shortcoming is that studies based on the linear regression model did not conceive and represent the educational career as the individuals themselves did, namely as a series of transitions between levels.

The second period of educational stratification research therefore began with the proposal of the sequential logistic regression model of educational transitions (Mare, 1980, 1981). Decomposing the intrinsically discrete and sequential nature of an educational career in a series of successive branching points, this model assesses the net effect of social background variables on the odds of 'surviving' each specific transition. With this model it has been observed in many countries that social origin effects

decline steadily from the earliest school transitions to the latest (Müller & Karle, 1993; Shavit & Blossfeld, 1993; Rijken, 1999). For instance, social background effects in the transition from elementary education to lower secondary education are typically *stronger* than those in the transition from higher secondary education to tertiary education. This progressive decline over school transitions has often been attributed to a process of differential selection: from the earliest to the latest school transitions, differential dropout rates systematically reduce heterogeneity between children from different social origins on unmeasured determinants of school continuation such as ability or motivation, and because of the correlation between these variables and social origin greater homogeneity on unmeasured factors at higher levels of schooling reduces the effects of observed social background variables (Mare, 1981: 82). According to a related argument, over birth cohorts the educational expansion increases the proportion of the total population which is exposed to a given transition; then its heterogeneity on unmeasured determinants of school continuation is likely to grow and, as a consequence, the effects of social background variables on the odds of surviving that transition are likely to increase over cohorts. This is indeed what I recently highlighted for France in two papers based on very large representative samples (Vallet, 2004; Vallet & Selz, 2005). Considering thirteen five-year birth cohorts born between 1908 and 1972 (or nineteen three-year birth cohorts born between 1920 and 1976), I was able to demonstrate that the temporal dynamics of the association between social origin and the odds of surviving a given transition is strikingly different from the earliest to the latest school transitions. As regards the first transition (getting any diploma versus no diploma at all), a downward trend in the general strength of social origin effects clearly appears from the early decades of twentieth century. This is also the same from the 1938-1942 birth cohort for the second transition that concerns getting at least a lower secondary or lower vocational diploma versus getting only a primary education certificate. On the contrary, remarkably constant social origin effects characterize the third transition. Finally, a slow but nearly monotonic increase in social origin effects appears from the 1938-1942 birth cohort for the fourth transition. This transition analyses the odds of getting at least a tertiary education degree versus getting only a higher secondary or technical education diploma. So, a pretty clear stylised fact appears: the educational expansion within a society is accompanied by a progressive *decrease* in social origin effects in the first school transitions, but by a progressive *increase* in social origin effects in the last school transitions. Or, in other words, with the edu-

cational expansion, inequality of opportunity related to social origin seems to leave the bottom of the educational system and to rejoin the top.

The sequential model of educational transitions therefore is a powerful tool to analyse structure and change in inequality of opportunity related to social origin within the educational system. As it closely parallels the continuation decision process along the educational career, it provides us with 'pure' measures of social origin effects that are specific for each transition examined. So the sequential model leaves the following question entirely unanswered: if, in a given country, social origin effects decline over birth cohorts for some transitions, but remain stable or even increase for some others, what is the final outcome as regards temporal dynamics in the intrinsic association between highest educational level attained and social origins in that country? Over recent years sociologists have essentially focused on this question, taking advantage of recent progress in log-multiplicative modelling – the 'Unidiff' or log-multiplicative layer effect model (Erikson & Goldthorpe, 1992; Xie, 1992) – that now offers considerable statistical power to discern even slow historical trends which would have gone undetected otherwise. I will now outline the main findings and results that have been obtained in this research field.

Findings and Results about Change Over Time and Differences Between Countries¹

A major comparative project of empirical analyses was directed by Shavit and Blossfeld, and brought together in the book *Persistent Inequality: Changing Educational Attainment in Thirteen Countries* (1993). It included studies of thirteen industrial countries: six Western European (Great Britain, Italy, the Netherlands, Sweden, Switzerland, West Germany), three Eastern European (Czechoslovakia, Hungary, Poland), and four non-European (Israel, Japan, Taiwan, the United States). These studies were conducted by experts in the stratification and school systems of each particular country. Most contributors used similar background variables (father's occupation or social class, father's education) and outcomes (years of education; transitions from primary to lower secondary, from lower to higher secondary, from higher secondary to tertiary), and

¹ In this section I also rely on the very recent (2005) review of the literature written by my colleagues Richard Breen and Jan O. Jonsson.

they used identical methods (linear regression model of years of education, logistic regression models for transitions). The country chapters assessed change in educational inequality via synthetic cohorts from cross-sectional surveys. The study addressed several macro-oriented hypotheses. According to the modernization hypothesis, one would expect social origin effects to decrease generally, while the reproduction hypothesis states that inequalities may decrease at lower transitions because of educational expansion, but not on higher transitions. The socialist transformation hypothesis assumes that there would be an initial reduction in social origin effects that would be followed by increased effects as new elites pursued their interests. Finally, the 'Maximally Maintained Inequality' (MMI) hypothesis (Hout, Raftery & Bell, 1993) predicts that the effects of social origin only decline at those transitions for which the attendance rates of the privileged classes are saturated.

The major result of the project was that it found little change in socio-economic IEO, i.e. virtual stability across cohorts in the association between social origins and educational transitions, which the editors consider a clear refutation of the modernization hypothesis. Only two countries – the Netherlands and Sweden – experienced a decline in social origin effects for transitions within secondary education, and in both cases that decline occurred before the attendance rates of the upper classes were saturated (which contradicts the MMI hypothesis). In the chapter on Sweden it was suggested that the effects of improved living conditions, school reforms and reorganization, and the equalization of the standard of living in this country were probably the major explanations for the declining association (Jonsson, 1993). These conjectures have been confirmed ever since by demonstrating the importance of, primarily, decreasing income differences and increasing income security, secondarily, the comprehensive school reform (Erikson, 1996; Jonsson & Erikson, 2000). Yet, Shavit & Blossfeld (1993) stressed that, in all the countries examined, the transformations of the educational system did not lead to a reduction in the association between social origins and any of the educational transitions. Finally, the results of the comparative project did not afford any convincing support for the socialist transformation hypothesis.

The *Persistent Inequality* book therefore was an important step to establish the conclusion that IEO is characterized by strong temporal inertia. However, over recent years its results have been scrutinized and some of them have been contested. In particular, subsequent analyses based on larger samples and/or more powerful statistical modelling have clearly shown

equalization trends in some countries. In Italy, a reanalysis of the data revealed declining effects of father's education on the odds of completing the lower levels of the educational hierarchy (Shavit & Westerbeek, 1998). An equalization trend was also demonstrated for Germany (Jonsson, Mills & Müller, 1996) and probably Norway (Lindbekk, 1998) while the results for Sweden (Jonsson & Erikson, 2000) and the Netherlands (Sieben, Huinink & de Graaf, 2001) have been corroborated. In some other countries however, constancy in IEO seems to prevail. This is the case in Ireland (Breen & Whelan, 1993; Whelan & Layte, 2002) and the United States (Hout, Raftery & Bell, 1993; Mare, 1993; Hout & Dohan, 1996). For Soviet Russia, a mixed pattern was found with the association between social origin and education declining at secondary education but strengthening in access to university (Gerber & Hout, 1995); but a later paper found that, in post-Soviet Russia, the association has, if anything, increased (Gerber, 2000). According to most recent research however, it is likely that many countries share in a (relatively modest) change toward a decreasing association between social origin and educational attainment. A research project that jointly analysed comparable data from eight countries – Germany, France, Italy, Ireland, Britain, Sweden, Poland, and the Netherlands – for cohorts born between 1908 and 1972 was able to detect declining association between social origins and educational attainment for all of them except Ireland and Italy, two countries with the smallest sample sizes in the data set (Breen, Luijckx, Müller & Pollak, 2005). The same paper also showed that the distinction, evident in the older cohorts, between highly unequal countries (such as Germany, France and Poland) and the more equal ones (Britain, Sweden and the Netherlands) has diminished somewhat, partly because the biggest declines in IEO have been registered in the countries with greater initial inequality. By way of illustration, I will now depict the main features of structure and change in IEO within French society (Smith & Garnier, 1986; Thélot & Vallet, 2000; Vallet, 2004).

Structure and Change in Inequality of Educational Opportunity in France

In the first 1908-1912, the median 1938-1942 and the last 1968-1972 birth cohort, educational destination strongly depends on social origin, and in essentially the same way (*Table 1*). For instance, in each generation, men and women with origins in the 'teachers and assimilated occupations' category are the most advantaged, as indicated by the percentage of those who reached a lower or upper tertiary degree. Using the same criterion, children

of higher-grade professionals and managers, then children of lower-grade professionals and technicians are the second and third groups in each generation again. Conversely, children of farmers and smallholders and children of agricultural and unskilled manual workers were equally disadvantaged in the 1908-1912 birth cohort: the percentage distributions are very close and in each case about two-thirds did not get any diploma. In the 1938-1942 birth cohort the offspring of both social groups were again rather close and still appeared to be the most disadvantaged considering their educational qualifications. But children of farmers and smallholders strongly improved their relative position between the 1938-1942 and 1968-1972 cohorts. At the end of the period their educational destinations are considerably more favourable than those of children of agricultural and unskilled manual workers. They are also clearly better than those of children of foremen and skilled manual workers and slightly better than those of routine non manual workers. The examination of simple row percentages therefore suggests that despite strong inertia in the association between social origin and educational destination in France some change has occurred from the early decades of the twentieth century in which children of farmers and smallholders played a significant part.

Statistical modelling demonstrates that the general strength of the 'pure' (i.e. net of educational expansion) association between social origin and educational destination has declined by 35% (in the logged odds ratios) over sixty years. While it has been nearly monotonic, change in the origin-education association was especially sharp between the 1933-1937 and 1948-1952 birth cohorts, then largely levelled off in the three subsequent cohorts, but took off again in the very last one (1968-1972). The decline in IEO in France therefore seems largely independent of major secondary school reforms explicitly introduced from the late 1950s to promote equality of educational opportunity. However, the sustained trend toward equalization between the 1933-1937 and 1938-1942 birth cohorts may confirm Prost's historical study according to which a reform promulgated in 1941 by the conservative Minister of Education Jérôme Carcopino to integrate the *Écoles Primaires Supérieures* in the secondary school system, had positive effects and resulted in declining IEO (Prost, 1990). The downward trend was more pronounced among women than men, especially because the former were characterized by stronger origin-education association until cohorts born in the mid-1930s. Its existence does not depend on the precise variable used to define social background. Change in origin-education association nonetheless appears more resistant to cultural inequalities (parents'

education) than to socio-economic inequalities (parents' social class), a finding which has also been obtained in the Netherlands (De Graaf & Ganzeboom, 1993). Statistical modelling also demonstrates that the improvement of educational opportunities among sons and daughters of farmers played a significant part in accentuating the equalization trend but was not the only factor in creating it.² Finally, a counterfactual approach reveals that the decline in IEO from the 1908-1912 birth cohort results in 100,000 'additional' men and women in the 1968-1972 birth cohort, originating from disadvantaged classes, i.e. the peasantry and the skilled or unskilled fractions of the working class, with diplomas in the higher secondary, lower tertiary or upper tertiary categories; they represent 5.8% of all men and women in the 1968-1972 cohort with background in these social groups. This assessment of the concrete effects of declining IEO may be an upper-bound estimate. According to another evaluation based on different surveys, the decline in IEO from the 1920-1922 birth cohort results in 28,000 'additional' men and women in the 1974-1976 birth cohort, originating from the same disadvantaged classes with diplomas in the higher secondary, lower tertiary or upper tertiary categories; they represent 3.1% of all men and women in the 1974-1976 cohort with background in these social groups (Vallet & Selz, 2005). Over and above statistical uncertainty, these assessments exemplify that the decline in IEO has by no means brought about a considerable change in society.

Explaining Temporal Inertia in Inequality of Educational Opportunity

Following pioneering work by Boudon (1974) in the context of rational action theory, several sociologists have proposed theoretical and formal models to account for the high degree of inertia in IEO despite educational expansion (Erikson & Jonsson, 1996a; Breen & Goldthorpe, 1997; Jonsson & Erikson, 2000). Rather convincing empirical tests of these models have also begun to be published (Need & de Jong, 2001; Davies, Heinesen & Holm, 2002; Becker, 2003). I will insist here on what these theoretical efforts hold in common.

Explaining educational inequalities needs to distinguish between 'primary' and 'secondary' effects. Primary effects are all those that are expressed in the empirically observed association that exists between children's social

² The same result has also been documented for Germany and Sweden (Jonsson, Mills & Müller, 1996: 194-5).

origins and their average level of academic ability: children of more advantaged backgrounds perform better, on average, than children of less advantaged backgrounds; such a difference appears rather early at school and is cumulative, i.e. the gap tends to increase along the educational career. The determinants of this difference in academic ability may be diverse: differences in home environments, in intellectual stimulation, in cultural factors, in sibship sizes, and so on. Assuming that any difference in academic ability is controlled, secondary effects are those effects that are expressed in the actual choices and decisions that children and their families make in the course of the educational career within the school system – including the choice of exit. Several factors affect these choices and decisions: the perceived cost associated with continuing in education, the perceived benefit associated with continuing in education and the perceived risk associated with continuing in education. These subjective assessments of cost, benefit and risk depend on the family position in the social structure. The perceived cost associated with continuing in education is higher in less advantaged families (in terms of financial effort, earnings foregone and so on). Conversely, the perceived benefit associated with continuing in education is lower in these families than in more advantaged ones because further education is not a *sine qua non* condition for the former to avoid social demotion and to maintain the family position in the next generation. Finally, less advantaged families are more responsive to the risk of failure associated with continuing in education, especially when the academic performance of the child is medium. The structural and quasi permanent nature of these differences in the assessment of cost, benefit and risk associated with school continuation would explain the persistence of secondary effects, the stability of the relative importance of primary and secondary effects and, by that way, the considerable inertia that characterizes socio-economic IEO.

Some research has tried to assess the relative importance of primary and secondary effects: Erikson & Jonsson (1996b) have estimated about equal proportions of class differences in educational attainment to derive from primary and secondary effects, but a recent British study indicates a larger share of primary than secondary effects, both of which appear to have remained pretty stable since the 1970s in the United Kingdom (Jackson, Erikson, Goldthorpe & Yaish, 2005). Finally, Breen, Luijkx, Müller & Pollak (2005) recently suggested that the declining trend in IEO they observe for six European countries may be related to significant temporal changes in the cost component of family educational decisions as well as a decline in primary effects because of the long term improvement of general living conditions.

TABLE 1. Educational Destinations for Each Category of Social Origins in the 1908-1912 Birth Cohort (N=3,577), the 1938-1942 Birth Cohort (N=25,493) and the 1968-1972 Birth Cohort (N=11,063) – France

	Birth cohort	No diploma	Primary education certificate	Lower secondary diploma	Lower vocational diploma	Higher secondary diploma	Lower/upper tertiary degree	Total
Farmers and smallholders	1908-1912	66.1	28.4	1.3	2.3	1.1	0.9	100
	1938-1942	28.0	40.2	4.6	18.0	4.5	4.6	100
	1968-1972	9.6	0.8	2.3	33.3	21.1	32.9	100
Artisans and shopkeepers	1908-1912	38.2	45.1	5.6	6.2	3.5	1.4	100
	1938-1942	14.2	24.9	10.2	24.9	12.4	13.5	100
	1968-1972	12.8	1.4	5.6	31.4	15.8	33.1	100
Higher-grade professionals and managers	1908-1912	19.7	24.9	12.3	12.5	16.0	14.6	100
	1938-1942	7.1	7.3	8.3	12.8	20.5	44.0	100
	1968-1972	4.9	0.1	3.0	8.7	18.6	64.8	100
Teachers and assimilated occupations	1908-1912	17.1	25.7	8.6	7.3	21.6	19.8	100
	1938-1942	4.9	2.0	7.2	11.3	18.9	55.7	100
	1968-1972	4.2	0.3	2.5	8.0	15.6	69.4	100
Lower-grade professionals and technicians	1908-1912	15.2	35.1	15.6	16.5	12.4	5.2	100
	1938-1942	9.6	14.0	10.9	24.6	18.3	22.5	100
	1968-1972	7.4	0.3	4.4	18.3	20.4	49.3	100
Routine non manual workers	1908-1912	39.1	38.1	5.5	10.3	4.1	2.9	100
	1938-1942	15.4	21.7	9.4	28.3	12.6	12.6	100
	1968-1972	14.5	0.7	5.4	31.2	19.5	28.6	100
Foremen and skilled manual workers	1908-1912	45.9	37.6	3.6	9.3	2.3	1.3	100
	1938-1942	20.8	30.1	5.6	29.1	8.3	6.1	100
	1968-1972	19.1	0.8	5.5	35.2	18.1	21.4	100
Agricultural and unskilled manual workers	1908-1912	65.2	27.8	1.1	4.8	0.8	0.3	100
	1938-1942	30.2	33.4	4.7	23.4	4.7	3.6	100
	1968-1972	27.3	1.7	6.6	38.2	14.1	12.2	100
Total	1908-1912	51.5	32.7	3.8	6.2	3.4	2.4	100
	1938-1942	20.8	28.1	6.7	23.3	9.5	11.6	100
	1968-1972	15.0	0.8	5.0	28.6	17.7	32.9	100

2. THE EDUCATIONAL ATTAINMENT OF CHILDREN OF IMMIGRANTS COMPARED TO THE OTHER CHILDREN: LESSONS FROM LONGITUDINAL STUDIES

As a consequence of the increase of immigration in numerous industrialised societies during recent decades, the number of children who are brought up in immigrant families has progressively risen and the educational attainment of immigrant children and children of immigrants has become an important issue of sociology of education. Some studies concentrate on the achievements of these children to provide powerful comparisons between members of different ethnic origins. In the United States for instance, Portes & MacLeod (1996) have carried out a study of more than 5,000 second-generation high-school students in Florida and California and have compared children of Cuban and Vietnamese immigrants (representative of relatively advantaged groups) and of Haitian and Mexican immigrants (representative of relatively disadvantaged groups). The authors found that parents' socio-economic status and length of residence in the United States significantly affected the students' academic performance as measured with standardized tests in mathematics and reading, but did not eliminate the effects of ethnic community.

Other studies are designed to incorporate not only immigrant children or children of immigrants but also native children. They therefore compare the educational attainment of the former group with that of the latter and examine how immigrants' children adapt to school in the society of immigration and whether they are confronted with ethnic educational disadvantages. In Germany where secondary education consists of three hierarchically ranked tracks – *Gymnasium*, *Realschule*, *Hauptschule* – in which children are streamed at the end of elementary school, Alba, Handl & Müller (1994) have used the 1989 *Microzensus* and the German Socio-Economic Panel to study ethnic inequalities in the German school system. They found that, relatively to young Germans with identical socio-demographic characteristics, Italian, Turkish and Yugoslav children are overrepresented in the least prestigious track, leave it more often without obtaining any apprenticeship and are underrepresented in *Gymnasium*. Only the smaller group of Greek children contrasts with this picture and in some respects obtains better school careers than German children. Finally, the empirical test the authors provided in order to explain the school handicap faced by Italians, Turks and Yugoslavs highlights the role of both cultural aspects and continuity of school attendance in Germany.

However, it seems that the school situation of immigrants' children can be strikingly different in different countries, even for children from the same

origin. Let me consider now the Australian study conducted by Clifton, Williams & Clancy (1991). These authors have investigated data collected between 1975 and 1980 in a national longitudinal survey of pupils aged 14 in 1975 and followed up in subsequent years. They found that, at the age of 14, pupils from Greek and Italian origins performed less well in English and arithmetic than other pupils with similar socio-demographic characteristics and Australian or English background. However, the former were more numerous than the latter to complete upper secondary school and the regression analyses the authors provided highlights the role of socio-psychological factors in these more favourable school trajectories: pupils belonging to Greek and Italian minorities found more support for their studies in their environment – their friends, their parents and their teachers – and they also developed a more positive conception of their academic value.

The fact that immigrants' children, sometimes from the same origin, achieve differently in the school system of different societies therefore suggests that national contexts and/or the specific organization of schooling in various countries play a part in the educational attainment of immigrants' children compared to that of native ones. I will begin by examining different factors that potentially affect the educational attainment of children, elaborating a distinction between factors that are probably common to all children, that is to say, immigrants' children and native ones, and factors that may be more specific to the former group.

The Educational Attainment of Immigrants' Children and Native Ones: Common and Specific Factors

In the sociological literature, it is widely recognized that the assessment of the effect of immigration on educational success has to be disentangled from the effect of other ascribed characteristics such as gender and social class. This is for instance true in France where, as a consequence of the strong correlation between immigration and membership in the working class, early research systematically compared the educational outcomes of foreign children born in a manual worker family with those of French children in the same class (Clerc, 1964; Boulot & Boyzon-Fradet, 1988).

It is however doubtful whether social class, as operationalized with the occupational group of the head of the household, adequately captures all relevant features of the family that are likely to affect educational success. On the contrary, international research on the determinants of educational attainment has amply demonstrated that a number of family aspects are at

work. Some of them approach socio-economic or material resources: in this respect, the occupational group of the head of the household obviously is a major variable, but maternal employment status and family income also have to be considered. Secondly, the cultural resources inside the family are likely to affect the educational success of the child: parents' highest diploma and any other family characteristic which might favour or help the child's schooling are relevant here. Thirdly, it is necessary to take account of other objective aspects in family situation that may be influential, notably structure of the family, total number of children and rank of birth of the child.

If immigrant families differ from native families not only on the basis of their distribution in social classes, but also on other characteristics such as parents' education or family size, we may expect that introducing a full set of socio-demographic characteristics in the analysis rather than controlling only for the occupational group of the head of the household will allow us to assess the effect of immigration on educational outcomes much more precisely. In fact, if immigrant parents not only are manual workers more frequently, but also have less formal education and larger families (which is for instance the case in France), we may predict that controlling only for the occupational group of the head of the household will produce a negatively biased estimate of the effect of immigration on educational success of the child.

With regard to the educational attainment of immigrant children and children of immigrants, two specific issues deserve special attention. The first one concerns the dynamics of change in academic performance that can be observed for immigrants' children over the school career and the question is whether this dynamics differs from that observed for native children with similar socio-demographic characteristics. Immigrant children and children of immigrants grow up and are primarily socialized in a family which is often strongly marked by its native language and culture, then they are exposed to the educational system of the receiving society which can be conceived as an important institution in their secondary socialization. We might then expect that a continued school attendance in the society of immigration and the duration of exposure to its educational system have specific effects on the progress of immigrants' children in academic performance.

In the available literature, some studies have examined whether, with regard to attainments measured with standardized tests, pupils belonging to immigrant families progress more in a given span of time than other pupils with similar characteristics. They have used analysis of covariance

models to explain differences in a final level of attainment with a set of variables including an initial measure of the same proficiency. In such models, the regression coefficient estimated for a particular sub-group of pupils therefore indicates that, within the considered period, they made more progress, as much progress or less progress than other pupils who, in other respects, possess similar characteristics.

In an English longitudinal study of twenty comprehensive secondary schools, Smith & Tomlinson (1989) consistently observed that, between the ages of 13 and 16, pupils belonging to minorities progressed more in English and mathematics than their schoolmates of the same social classes. A similar result was obtained in France with a sample of nearly 3,000 children examined at the beginning and the end of the third year in elementary school (Bressoux, 1994) and in two studies about school careers in the first two years of lower secondary school (Ernst & Radica, 1994; Meuret, 1994). On the other hand, Mingat (1991) concluded in favour of greater progress, during the first year of elementary school, for foreign-born non French children only, and obtained an opposite result for France-born foreign children. Finally, according to Serra & Thauvel-Richard (1994), the pupil's nationality introduces no significant difference in attainments reached during the third year of elementary school.

Another important issue concerns the effect of motivation and educational aspirations of immigrant families on the educational attainment of their children. The desire for a better life and for upward mobility often constituted an important motive for decision of emigration. A lot of immigrant families nevertheless hold low social positions in the society of immigration. They might then perceive investment in the educational system as the main path to upward mobility available to them. Compared with other families endowed with the same material and cultural resources (that are notably linked to their social condition and their educational level), immigrant families would then hope more keenly that their children acquire high educational skills. In other words, there are grounds to think that immigrant children, children of immigrants and their families develop stronger aspirations and expectations towards the educational system of the receiving society than other members of the same social classes.

The Australian longitudinal study I previously mentioned is *not* the only research that underlines the existence of such socio-psychological factors. In an analysis of the American National Education Longitudinal Study which has observed a sample of 26,000 eighth graders since 1988, Muller & Kerbow (1993) present a graph that expresses the proportion of parents

who expected their child to graduate from college by parents' highest level of education and race/ethnicity. Without exception and for each parental educational level, the point of the diagram associated with Whites is below the three others that concern Asian Americans, Hispanics and African Americans. Muller & Kerbow interpret this result as indicating that parents belonging to minorities are more sensitive than others to the social rewards brought by education. In an investigation based on the same survey, Kao & Tienda (1995) confirmed that foreign-born parents had significantly higher educational aspirations for their children than did native-born parents. They found empirical support for the thesis of 'immigrant optimism' according to which immigrant parents' optimism about their offspring's socio-economic prospects decisively influences the educational outcomes of first- and second-generation youth. The results also suggest that behavioural differences between immigrant and native parents are essential ingredients in explaining the differential performance of immigrant and native youth. In France, concluding a two-year longitudinal study of about a hundred lower secondary schools, Grisay (1993) notes that immigrants' children seem to be on average better disposed towards school than French youth of the same social class and that they are more anxious to 'do the right thing' and to conform to their teachers' expectations. Closely similar observations were also made in England (Smith & Tomlinson, 1989).

Findings from the 1989 French National Education Longitudinal Study

In several publications in French (Vallet & Caille, 1996a, 1996b; Vallet, 1996), we used the 1989 French National Education Longitudinal Study (NELS) to assess the academic success of immigrants' children in the French elementary school and lower secondary school. More precisely, the examined sample (N circa 18,500) comprised all children born the 5th of a month who entered lower secondary school (first form) in September 1989 in a public or private institution of metropolitan France and whose family answered a complementary survey in spring 1991.³ In order to approach the population of immigrants' children in the absence of any information about parents' country of origin, various criteria were used including nationality of the child, birthplace of the child, the number of years of elementary schooling outside France, the number of years the parents have lived in France, and language spoken at home.

³ The response rate to the complementary family survey was 80.6%.

With regard to the measurement of academic success in elementary school, we used retrospective information collected in autumn 1989 from the secondary school and in spring 1991 from the family and we considered as an indicator of success the fact that the pupil did not repeat a year. According to such an indicator, we systematically observed that immigrants' children were less successful than their schoolmates in the French elementary school, but except for pupils who migrated themselves (i.e. children born in a foreign country and children who experienced elementary school years outside France), this difference generally disappeared after controlling for a set of socio-demographic characteristics including social class of the head of the household, father's and mother's level of education, and number of siblings.

We also analysed standardized test scores (whose range is 0-100) in French and mathematics at the outset of secondary school. For instance, relatively to French first form entrants, foreign pupils on average obtained 8.7 points less in French and 6.1 points less in mathematics. Again, differences in socio-demographic characteristics between foreign and French pupils were largely responsible for this achievement gap. In an analysis controlling for family and social background, the regression coefficient estimated for foreign pupils was no more significant in mathematics and amounted to -1.4 point in French (Vallet & Caille, 1996b). In other words, the net handicap of foreign pupils in French represented only 16% of the gross handicap; its size was also close to the net difference between pupils in a three-children family and those in a two-children family.⁴

With regard to the measurement of academic success in lower secondary school, we used the information collected from the school over the four years after enrolment in secondary education, that is to say, until June 1993. The indicator of success combined completion of lower secondary school in due time (no year repeated among the four required) with orientation towards long studies leading to *baccalauréat*. With this indicator, we again observed that immigrants' children were less successful than their schoolmates in the French lower secondary school. However, compared to the gap measured in elementary school, the difference was subsequently reduced (Vallet, 1996). More surprisingly, the difference was even systematically reversed in regression analyses controlling for socio-demographic characteristics of children and their families: the academic careers of immi-

⁴ Closely similar results have also been obtained in the Netherlands (Van't Hof and Dronkers, 1994).

grants' children in the French lower secondary school were therefore *better* than those of their schoolmates who, in other respects, possessed similar social background and family environment.

It therefore appeared that belonging to immigrant minorities had at first a nil or negative effect, then a positive one. Although such a change over time might suggest that, while social and cultural handicaps affect the performance of immigrants' children in primary school, their performance improves as they become more acquainted with the system year after year, we found no real support for this thesis in the results obtained at the *brevet* examination (after four years in secondary school). And we found much more support in favour of the 'family mobilization thesis' (Van Zanten, 1997) according to which immigrant parents' aspirations and their practices in relation to schooling play a central role in their children's success at school: *ceteris paribus*, immigrant families expressed stronger aspirations towards long studies and more ambitious school career plans for their children. For instance, in spring 1991, immigrant parents were more prone than other (comparable) parents to wish that their child went on studying till 20 or more and they were also more prone to tell that a tertiary education certificate is the most useful diploma to find a job. And again, in June 1993, after four years in lower secondary school and relatively to other families with similar socio-demographic characteristics, immigrant parents more often asked for an admission of their child to upper secondary school.⁵

Although these results rather convincingly suggest that, in French society, the educational system appears to immigrant families as an important vehicle for social mobility, two potential limitations must be emphasized: first, only incomplete careers in secondary school were analysed; second, in the absence of quantitative measures of school performance or grades, admission to upper secondary school was considered the main indicator of success in lower secondary school. The real issue of academic careers in the French secondary school was therefore unknown and we might wonder whether immigrant families' aspirations actually facilitated the educational attainment of their offspring.

⁵ This result was obtained in logistic regression analyses controlling for social class of the head of the household, father's highest diploma, mother's highest diploma, mother's employment status, number of children in the family, gender of the child, rank of birth of the child, presence/absence of an older brother or sister in upper secondary school or university, structure of the family and child's academic performance at enrolment in secondary school.

This is the reason why, in a subsequent paper (Vallet & Caille, 1999), we used a rather stringent criterion of success in secondary school (obtaining the *baccalauréat général* or *baccalauréat technologique* diploma after seven years) and we also used a less stringent one which notably permits that the pupils repeat a year in secondary school once or twice (obtaining the *baccalauréat général* or *baccalauréat technologique* diploma after seven, eight or nine years). On the basis of such indicators, immigrants' children clearly were at a disadvantage in the French secondary school. For instance, only 19.4% of foreign pupils who entered secondary school were successful at the *baccalauréat* examination after seven years as opposed to 31.8% of French pupils; only 41.8% of the former passed the examination after seven, eight or nine years as opposed to 57.9% of the latter. But these differences had nothing to do with an ethnic educational disadvantage because most of them virtually disappeared after controlling for the occupational group of the head of the household. Moreover, when a more complete set of socio-demographic variables was introduced in order to take account of a number of family characteristics which are likely to affect school success, the difference was even reversed: immigrants' children were more successful in the French secondary school than native children with the same social background and family environment, and the difference was even more pronounced when the statistical analysis controlled for the level of academic performance at the outset of secondary school. The difference was also larger with the less stringent criterion of success than with the most rigorous one, thereby suggesting that, compared to other pupils, immigrants' children were more persevering in the direction of success when they faced school difficulties. Finally, the difference between immigrants' children and native ones decreased when the educational aspirations of the families were included in the regression model. Such a result therefore indicated that the strong aspirations immigrant families expressed in 1991 had a mediating effect and partly explained the more favourable school trajectories of their children. It was difficult to assess whether these results applied to the different foreign nationalities to the same extent because the design of the National Education Longitudinal Study did not allow powerful comparisons between them. We might however notice that these results were reproduced on one or both criteria of success for five of the six most numerous groups in the survey, i.e. Algerians, Moroccans, Tunisians, Portuguese and South-East Asians; only Turks seemed to be different in this respect.

The net advantage of immigrants' children over native ones did not correspond to a better success at the *baccalauréat* examination *per se*. Moreover, among pupils who passed the examination, a complementary analysis suggested that immigrants' children obtained less brilliant results than their schoolmates. The net advantage of immigrants' children rather accumulated over the entire school career, primarily in lower secondary school and secondarily in upper secondary school, and the educational aspirations of immigrant families played a part in this process.

Some similarity therefore exists between the results provided by the French 1989 National Education Longitudinal Study and those exhibited by Clifton, Williams and Clancy (1991) in Australia and by Muller and Kerbow (1993) as well as Kao and Tienda (1995) in the United States. Although they are strongly disadvantaged by their class location and their level of education, immigrant families in France invest in the educational system to improve their children's future, they develop strong educational aspirations for them and, in return, these socio-psychological factors have a key role in explaining the educational attainment of immigrants' children in the French lower and upper secondary school.

Are These Results Robust Results?

Over recent years, several French studies have examined whether these findings may be corroborated and/or made more specific. Using simultaneously the 1980 and 1989 NELS, Bénabou, Kramarz & Prost (2004) have controlled for a number of socio-demographic and contextual characteristics; they have observed that foreign pupils get better access to third form and fifth form of secondary school and also obtain 'better' diplomas than French comparable pupils. On the basis of a time-diary complementary survey, Cibois (2002) has shown that North African children more often adopt school willingness behaviours at home. But the most recent studies have essentially been carried out on the 1995 NELS, a representative sample of all secondary school first form entrants in September 1995 whose school trajectories have been followed up onwards (N circa 14,900). This survey has also been supplemented by a 1998 Family survey (that permits a rigorous identification of immigrant families) and a 2002 Youth survey. The latter has specifically examined the youths' experience of schooling and their educational and occupational plans for future.

First, Caille & O'Prey (2002) have confirmed the worse achievement of children of immigrants relatively to the other children in elementary school

and lower secondary school, and they have also confirmed that this achievement gap is considerably reduced or even reversed in analyses that take socio-economic and family characteristics into account. They have also provided rather convincing evidence that, over the four years of lower secondary school, children of immigrants progress *more* in French, foreign language and mathematics than their schoolmates with the same family and background situation. The same authors have also observed that, especially because of their low education, parents in immigrant families are less able to help their child in his schoolwork and have less contacts with teachers and school principals. These differences with native families are *not* fully eliminated after controlling for a number of socio-demographic characteristics. However, that does not mean that immigrant families have less interest in their child's schooling. For instance, except for Turks, immigrant families pay for private lessons for their child at least as often as manual worker native families. And immigrant families register their child in a public library considerably more often than all other families. Second, Brinbaum & Kieffer (2005) as well as Caille (2005a) have scrutinized the parents' and youths' educational aspirations in immigrant families. They have confirmed that immigrant families have more ambitious school career plans for their offspring than native and comparable families, elaborating a further distinction between families of North African and Portuguese origins. These educational aspirations are also less reduced than in native families when the adolescent encounters school difficulties. Finally, parental aspirations are transmitted to children of immigrants who reinterpret them. Seven years after entering secondary school and despite their academic achievement that is on average less favourable, adolescents in immigrant families more often plan to engage in tertiary education, choosing relatively short commercial and administrative paths rather than long and purely academic tracks, a preference that may be related to the view, in immigrant families, of the educational system as the main way to improve material living conditions. Third, Caille (2005b) has analysed the experience of immigrants' children at the end of fourth form and fifth form, that is to say, at moments of the school career that are characterized by important orientation decisions. As they develop high educational aspirations and plans, and simultaneously have on average lower academic achievements than other pupils, children of immigrants more often have their orientation plan and wish refused by the teachers' team, especially those of North African and Sub-Saharan origins. That implies that adolescents of North African and Sub-Saharan origins more often express a feeling of

injustice and those of Turk and Sub-Saharan origins more often consider that their actual orientation has been constrained by insufficient academic achievement.

Finally, it is probably worth emphasizing that the above results (that have been entirely obtained on French large-scale and longitudinal surveys) are *not* at odds with two recent reviews of the corresponding sociological literature in the United States (Kao & Thompson, 2003; Waters & Jiménez, 2005). As Kao & Thompson stated in their conclusion (2003: 435):

Overall, there are many signs of optimism. Racial and ethnic gaps in educational achievement and attainment have narrowed over the past three decades by every measure available to social scientists. Educational aspirations are universally high for all racial and ethnic groups as most adolescents expect to go to college. However, substantial gaps remain, especially between less-advantaged groups such as African Americans, Hispanics, and Native Americans and more advantaged groups such as whites and Asian Americans. The racial and ethnic hierarchy in educational achievement is apparent across varying measures of the academic experience.

3. CONCLUSION

What can we do to improve the education of children from disadvantaged backgrounds? In this paper, I have argued that, even in affluent societies, there is rather strong, persistent and pervasive inequality of educational opportunity between children and adults with different ascribed characteristics such as social origin and ethnic origin. Indeed, it took many years before quantitative sociologists became able to discern modest change in the temporal dynamics of the association between social origin and educational attainment, over and above change mechanically afforded by educational expansion. On the basis of what we have learned, progress toward more educational opportunity seems to have intervened in periods of declining income inequality and was also a consequence of school reforms, notably the introduction of the comprehensive school that resulted in postponing the earliest decision point in the school career. That view is coherent with the fact that, in Germany which is a country characterized by a highly- and early-tracked educational system, children of immigrants are strongly disadvantaged in their educational attainment relatively to native children with the same family and social background. Inequality of

educational opportunity is also characterized by strong temporal inertia because families *themselves* are at the root of such inequality. This is the case because of the different abilities families in different social classes have to provide learning environments that result in high academic ability – what sociologists have called ‘primary effects’. But this is also the case because families in different social classes create inequality of educational opportunity by themselves, on the basis of their different assessments of benefits, costs and risk (or probability of success) associated with further education – what sociologists have called ‘secondary effects’. And we certainly need very active and specific policies to become able to modify the relative positions of different social classes with regard to those parameters. But longitudinal studies of the educational attainment of immigrants’ children also tell us an interesting story, especially as regards their ‘paradoxical success’. Because these studies demonstrate that immigrant families’ high educational aspirations *can*, to a certain extent, change the future of their offspring. They also suggest that the lack or weakness of parental education has different effects on how families consider their children’s future, if it is due to non-existence or deficiency of the educational system in the country of origin – which is often the case among immigrant families in France – or if it comes from school difficulties encountered during youth – which more often concerns parents with the same low education who have always lived in France. This is certainly a demanding, but also exalting task to think about and try diminishing inequality of educational opportunity within societies of the XXIst century.

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EDUCATION AND CULTURAL DIVERSITY

GLOBALIZATION AND CULTURAL IDENTITY

WEI YU

As well known, the globalization, caused by the rapid development of ICT (Information and Communication Technology), is becoming an inevitable trend in the present world. The developed part of our human society, not the whole world, is undergoing a fundamental transition from a knowledge-based economy to a knowledge-based society. In general the Chinese government and people in China are taking a positive attitude toward such change.

The rapid economic expansion and the vehement social changes in China since the adoption of reform and opening up policy in 1978 have been one of the hot issues in the international community. Over the last 26 years, Chinese GDP has grown at an average annual rate of more than 9 percent, bringing the per capita GDP 5 times higher (1), and the number of people in absolute poverty has reduced by over 100 million (2). The remarkable poverty-reduction in a country with 1.3-billion people speaks for itself of a substantial contribution to the global stability and development. Many consider China's leapfrog progress and change as a wonder, for just in 1978, the post-Cultural Revolution China was almost in bankruptcy and chaos. In 1965, the entrance rate to elementary schools, junior high schools and senior high schools, was 85%, 22% and 4.4% respectively and the university enrollment rate was 2% (3). All education sectors suffered huge damage during the Cultural Revolution. Teaching activities were stopped and research was postponed for at least 10 years. After the Cultural Revolution, we could say that we did not have money, or research, or human resources as well as no social order. Full-scale reconstruction and construction needed to start. So what was the driving force behind China for such a rapid change?

The reason, in my opinion, is that the late Mr. Deng Xiaoping, the chief-architect of Chinese reform, had responded to public aspiration, and proposed policies of reform and opening up that won unanimous support.

Within a short time, hundreds of millions of people became committed to the reform in action and heart. This force on the part of the public is the most fundamental and greatest drive behind this social and economic development.

The economic change in China, it could be said, is an outcome of the drawing on experience of western developed nations. China is among the first developing nations to embrace globalization, and was an active participant in WTO entry. For more than a decade, top leadership has been engaged in the decision-making and promotion of GATT and WTO negotiation. Negotiation for entrance to GATT and WTO was carried through from July 1986 to December 2001, which is over 15 years. China was among the scores of signatories, almost 40 countries, on the Trade in Educational Services, later called cross-border provision of education. In 2004, China had an import and export of over \$1,000 billion, accounting for 60% of total GNP (1). And it has sent more than 800,000 scholars to universities and research institutions in developed nations after 1978. The students from China now studying in OECD countries are the largest group of overseas students in those countries, accounting for over 10% of foreign students in OECD countries (4). Internet users in China are over 100 millions (5). The Chinese government and people cognize and actively participate in the joint effort in global issues, such as sustainable development and risk management. In summary, the positive attitude toward globalization is the major trend in China.

Why China, a nation long submerged in spontaneous agriculture economy, could embrace an open policy? There are strong philosophic and historical roots behind. The traditional philosophy in China emphasized world over nation, and family over individual. In Chinese culture the country is regarded as an expanded family and the whole world is one big family (天下一家). At the height of Chinese dynasties, the ruling group either tried to pacify the world, or to preach Chinese culture. Of course, there were economic and cultural exchanges between Chinese civilians and foreign counterparts. But the rulers tended to regard these exchanges more as an export of Chinese culture. The gate of the nation had been closed in 13th to 14th century, when its strength declined. In the China-Britain war in 1840, the gate was forced to open and the Chinese were awakened in defeat. And it ushered in more than a century of humiliation, backwardness, and bullying. Many history intellectuals went abroad to seek the way for the retrieval of China. After the establishment of the New China in 1949, China had a period of contacts with the former Soviet Union and some Eastern

European nations, but later closed its door again in the early 1960s. The Cultural Revolution was further featured by beating fellow countrymen with the door tightly shut. This is too abhorrent to many Chinese, who had drawn the lesson of 'the backward would be bullied'. So Deng Xiaoping was enthusiastically applauded when he proposed the reform and opening up policy. People found it easy to take the open concept, especially in economic perspectives.

After 20 years of re-opening, the Chinese started to summarize and reflect on some issues, including the clashes between eastern and western cultures and values.

'When we open the door to let in fresh air, it is inevitable to have some fliers and mosquitoes', this is a sentence often quoted when Chinese talk about the open-door policy. The current globalization process is carried out with economic activities and market entries. What have been introduced to China are often the market-related western cultures and values. However, what people see and experience are often not the best parts of western cultures. Instead, pop songs dominated music imports, sex and violence for online games, money-the-supreme and egoism for values. All these fanned up misunderstandings in China about western cultures and worries of 'culture invasion'. Hence the question of how to retain cultural identity while opening the economy became the focus of attention, and started to influence the drafting of education policies and scheduling of the curriculum. The issues of political and economic steadiness in globalization, of course, are there and closely intertwined with the maintenance of cultural identity. We will not, however, go into great depth to discuss the two issues today except their direct implications on cultural identity.

These reflections of crash between eastern and western culture projected into two different attitudes and approaches in education.

One school maintains that we should intensify traditional culture education among students, for example, to require a five-year kid to recite ancient poems that he cannot understand. A very influential academician in the Chinese Academy of Engineering preached in conferences and newspapers that the Chinese should recite ancient articles, just like Westerners recite the Bible and Muslims recite the Alcoran (6). He requests his graduates in engineering departments to recite the Analects of Confucius, the famous philosopher and educator in China some 2000 years ago, and Dao De Jing (Taoism Scripture) of Lao Zi. Studies in Chinese Ancient Culture have been resumed in many famous universities, and recently some universities have rebuilt departments or research institutes of ancient Chinese culture.

Another school goes to another extreme by advocating that western nations still dominate, or are the mainstream of the 21st century in science, technology, and economy; that materials in English dominate the Internet. So a child should learn English, and if possible, should go abroad to study, the earlier the better. In some cities, especially the ones with better economies, students going abroad are becoming younger and younger. Some Western theories of education and even curriculums are introduced directly to classrooms.

Sino-foreign culture relations often bothered the Chinese during the opening up. The debate on the aforementioned two attitudes, refusing or totally accepting western cultures, has been on and off for more than 100 years. Many patriots have proposed solutions, such as 'using foreign means and ways to serve Chinese interests', 'Chinese substance and western function', etc. But they failed to go into further depth, and did not set down many cases of success or relatively complete theories.

What is culture? It is said to have more than 500 definitions according to some, but at least more than 20 definitions are considered authoritative. A UNESCO official, when he and I were discussing the definition issue, said culture was the daily behavior of people. This definition seems to be too simple. Professor Xu Jialu defined culture as all materials, institutions, and spirits that mankind has created, and categorized culture into three kinds, i.e., material culture, social culture and philosophic culture (7). I would prefer that culture is, or mainly is the representation of the spiritual domain. It may have material or mobiles as the carrier, but culture is actually the spiritual civilization or ideologies that sustain the tangible form. What is culture? I think it should be multi-layers, highbrow and popular. The basic level is daily practice and behaviors. The second level is art, literature, and science, which are the processing, abstraction and sublimation of real life, history, tradition and culture. The third level is theory and thinking, including philosophies. The fourth level is religion and political beliefs.

Culture is superstructure, and is closely interrelated with the development of productivity. There is no such thing as a unified universal culture, though the core connotation might be similar in most of the evolutionary phases of mankind. It is highly important to maintain cultural identity or diversity in globalization.

Cultural identity was put forward and reiterated many times by Professor Fei Xiaotong, the famous Chinese sociologist who passed away only recently. The arrival of the information age and the expansion of globalization, he believed, are making the globe smaller. In such an interna-

tional context, all nationalities, countries and regions will have their cultures communicated, clashed and integrated (8). It is because of this very reason that we should promote cultural identity, and should understand clearly our own culture and others' cultures as well. Only by doing this can we build a better future for mankind in a diversified world. Cultural identity refers to an individual in a certain culture who knows the identity of the culture, i.e., its history, evolution, features and future, without any purpose of 'cultural returning'. It is not for 'returning to the old time' or for total westernization and self-denial. Cultural identity is to enhance self-awareness over cultural change, to be accommodated in a new environment, to choose own development in a new age, to reflect the relations among global cultures in a new situation, to avoid the culture crash and to build understanding and tolerance.

Professor Fei's theory won recognition among sociologists and educators. We need to, in our new times, have serious discussion over feasibility, especially for education. I would like to brief you on some pilot projects and researches currently underway.

Both western and Chinese cultures have their fine parts, where common features could be drawn and easily communicated, as it does in the case of science culture.

I think the culture of science and the value of science are part of the essences of western culture, and also the very thing that the Chinese culture lacks and should have. The culture of science is also something each culture could share. Science knows no border. It is where peoples can find intercommunity and common language. The communication among scientists is always easy. This is why the international science community could launch joint efforts over the years to promote inquiry-based science education in different nations.

The education of science aims not only to impart knowledge, but also to launch a new culture, including the world outlook of life, way of thinking, and orientation of values, etc. The science culture from the West also needs adaption according to Chinese culture. While we study the Western science culture, we introduce it to the Chinese culture environment, and have it reshaped and upgraded.

Chinese culture not only has many traditional arts, crafts, calligraphy and poems, but also advocates the middle way, benevolence and righteousness towards people, and to 'look at a picture from at least two different perspectives'. This is instructive for harmony and steadiness. It could be drawn upon by the western education, including the science culture. Here

I would like to give an example of ‘wind’ teachings in kindergartens and let us see the contrasts. In this module we want children to understand that the air is a kind of material, and the wind is the moving air. This context is taken in French and Chinese kindergartens as well. As a scientific concept it is no different, but as you look at the wall pictures made by children in one kindergarten in Beijing, you can see that already they fast and innately use Chinese philosophy. They put the impacts of wind into positive and negative parts: the wind is our good friend and the wind brings disaster to our society (9). Our colleagues from the French Academy were surprised as they visited this kindergarten and saw these beautiful pictures.

In the past decade, cultural differences in perception; judgment and memory have been observed: Westerners give greater attention to focal objects, whereas East Asians give greater attention to contextual information. I can also cite here a recent study to demonstrate how different Chinese and American approaches can be while observing the same issue. This is a study at the University of Michigan and was published on PNAS last August (10). In the study they measured the eye movements of American and Chinese participants while they viewed photographs with a focal object on a complex background. It discovered that the Chinese made more saccades to the background than the Americans did, the Americans tended to look at the focal object more than the Chinese did. It shows the difference between cultures in the cognition process. The research in our Center is also explaining the difference existing in the emotional development of children between cultures.

To keep the essential part of each culture is not only in the interest of developing nations, who are not leading science, education and culture development in the world, but also in the interest of the developed countries. It requires joint efforts from the two. The developed countries should export their culture essence, not the undesirable parts. China should continue to learn from the West, especially the science culture, a culture underscoring analysis and exemplification, while continuing our whole-picture and two-perspectives approaches. China should learn the western respects for individuals, while inheriting our traditional recognition of family and society, and also the spirit of contribution and sacrifice. The people in the developed nations need to know China, its culture essence, and especially the Chinese values and its comprehensive dialectics. This diversity of cultures and their exchanges and communications will help to build a harmonious and sustainable world. Inquiry-based science education is to be a road to our dreamlands, and a bridge to understanding and cooperation.

About 6 billion people of 2,500 ethnic groups in more than 200 countries dwell on Earth now and the endeavor to build a world of harmony only becomes possible by culture identification and cooperation.

Education is to shape the future. Education is the investment in future. While drafting our education policies, we should think of the future, a future for the irreversible globalization, and think how to build a future that both East and West can develop in harmony. Only by doing this, can we realize the sustainable development of mankind.

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GLOBALIZATION AND CHALLENGES FOR EDUCATION IN LEAST DEVELOPED COUNTRIES

JEAN-CLAUDE BERTHÉLEMY

1. INTRODUCTION

There is a growing concern about the possibility that the poor, in particular in least developed countries, be suffering instead of benefiting from globalization (World Commission on the Social Dimension of Globalization, 2004). Although the total number of individuals living in absolute poverty has declined globally over the past two decades – thanks in particular to progresses observed in China –, it has increased in many least developed countries (LDCs), particularly in sub-Saharan Africa, which means that hundreds of millions of deprived people hardly benefit from globalization. This is due to economic stagnation, and sometimes to rising domestic inequalities, in poor countries. Such a dismal record is a paradox for economists and a challenge for the development community, which needs to be urgently addressed. I shall put forward in this paper that, to a significant extent, this lack of gains from globalization for a large number of poor people is related to inadequate education policies in many LDCs, in spite of the repeated political pledges in favor of the ‘education for all’ goal. I shall in particular consider these issues in the case of sub-Saharan Africa, which is certainly the region of the world that has suffered the most from globalization, and presents nowadays the most pressing challenges for the development community.

The bottom-line of my argument lies in the history of economic development since 1950. Available data suggest that education policies have been a key ingredient in the take-off of countries that are nowadays considered as emerging economies, which subsequently led them to become major players in the global economy, and winners in the globalization process. Emerging economies started growing in the 1960s when a majority of their workforce had been granted primary education. This proportion

has barely been reached nowadays in many LDCs, particularly in sub-Saharan Africa. I shall submit that such poor performances are due to inefficient and inequitable education policies, more than to shortage of resources. In particular, investments in primary education have been insufficient, compared to the resources invested in higher levels of education.

As suggested by the observed economic divergence of emerging economies and of LDCs since the mid 1970s, the globalization process has exacerbated and accelerated the macroeconomic consequences of such inadequate development policies. Furthermore, I shall show that the negative impact on the poor and on development perspectives in LDCs has been aggravated in at least two additional dimensions. First, it may have had adverse distributional consequences, given that the illiterate individuals are de-linked from global markets. Second, the globalization of labor markets has accelerated emigration of highly educated individuals from LDCs, and this brain drain can only magnify the cost of inequitable education policies.

Finally, I shall discuss some general principles on which more appropriate education policies could be based in least developed countries, as they appear for instance in the 'Education for All' declaration of the Jomtien conference (1990). I shall suggest, in particular, that education policies in developing countries should both promote the acquisition of knowledge necessary to become actual participants in the globalization process and be built on the national culture. An analysis of declared priorities of education policies, based on detailed information available from UNESCO, will show that most African countries do not address any of these challenges, contrary to emerging economies.

2. EDUCATION AND ECONOMIC TAKE-OFF: SOME LESSONS FROM RECENT HISTORY

Global Divergence

Even before globalization, there was a tendency of divergence among nations. This is clearly visible in the evolution of the international distribution of GDP by country from 1950 to 1975 (Figure 1). In 1950, there were a relatively substantial concentration of countries around a GDP per capita (in 1990 PPP US dollars) of US\$ 1,000, and very few countries above US\$ 10,000. In 1975, most countries, including the poorest, had increased their income per capita, but the shape of the distribution curve had also significantly changed, with a sort of plateau between US\$ 1,000

and US\$ 10,000. Between 1975 and 2000, which corresponds more or less to the globalization period, the shape of the distribution curve changed less, although a striking evolution has been that the poorest countries have been impoverished. While the income per capita of the poorest country increased initially from US\$ 290 in 1950 to US\$ 520 in 1975, it dropped to US\$ 210 in 2000.

This observation suggests a nuanced interpretation of the adverse consequences of globalization on poor countries. A number of developing countries, particularly in Asia, have taken advantage of globalization, at least judging from their rapid catch-up with developed countries. But these countries had in fact already started catching up beforehand – with the notable exception of China – and have been able to build on their initial success to develop even faster in the context of globalization. Conversely, poor countries that stayed poor until the 1970s have suffered in globalization, with an absolute decline of their income per capita. There are certainly a few counter-examples to this interpretation. China is the most prominent: although China did not take off until the 1970s, it has become one of the most notable winners in the globalization process. In this country, as well as in other transition economies such as Vietnam, even though there were investments in growth factors before the globalization period, such investment could not lead to fast economic growth due to the planned-economy system. This suggests that a principal difference between the developing countries that have taken advantage of the globalization process and the others is that the former had started investing in growth factors before opening and the latter had not done so, or not enough. As I shall suggest below (Figure 1), the most strategic of these factors is education.

The process of divergence between developed and emerging countries, on one hand, and least developed countries on the other hand, has received a lot of interest in recent growth literature. One major interpretation of this divergence is related to the concept of convergence clubs. This notion relies on the idea of multiple equilibria. In particular, following Quah (1997) one may interpret the emergence of a sort of twin-peaks in the international distribution of incomes as an indication that some countries – the LDCs – stay locked in a low-level stable equilibrium, which can be called a poverty trap, while others have reached or are converging towards a much higher, equally stable, equilibrium.

At a very abstract level, multiple equilibria occur in economic growth processes when, in the neighborhood of certain values of the state vari-

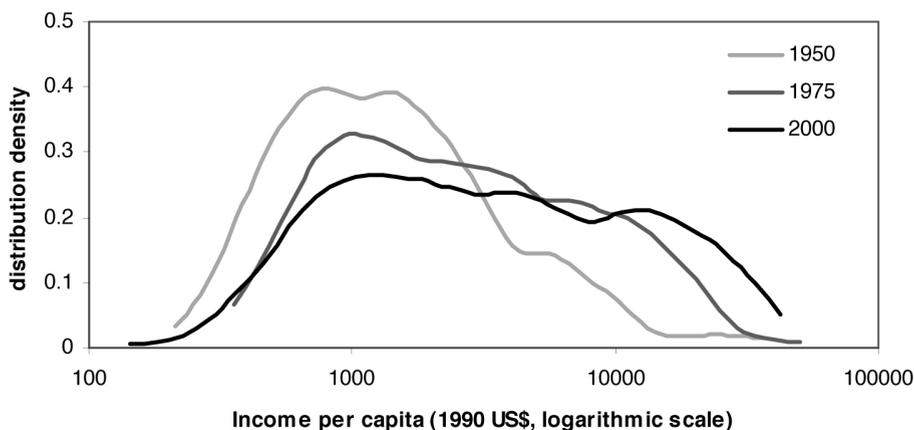


Figure 1. International distribution of income. Source: bases on Maddison (2003) data.

ables, the growth rate of an economy becomes an increasing function of its initial income level. Under such circumstances the initial gap between two countries can only increase over time, leading to a divergence between them. Combined with the existence of convergence processes – in the neighborhood of other values of state variables –, this leads to convergence clubs. This argument is exemplified in Figure 2, where I have traced a curve showing growth rates as a function of income level, henceforth called the ‘growth curve’. Equilibriums are defined by intersections of the growth curve with the horizontal axis. There will be multiple equilibriums if the growth curve is not monotonous, as illustrated in Figure 2. In this example, points B and D are stable equilibriums, defining convergence clubs, and the neighborhoods of points A and C illustrate situations where countries diverge. To the immediate left of B (respectively D), economic growth is positive, so that income per capita grows to B (respectively D); while to the immediate right of B (respectively D), economic growth is negative and income per capital declines to B (respectively D). Conversely in the neighborhood of A (respectively C), income per capita diverges from A (respectively C)(Figure 2).

Although the convergence club literature is fairly well-developed, it says almost nothing about the conditions under which an economy could escape a poverty trap and catch-up with more advanced countries. In Berthélemy (2005), I proposed an attempt to fill this gap. I first explored the

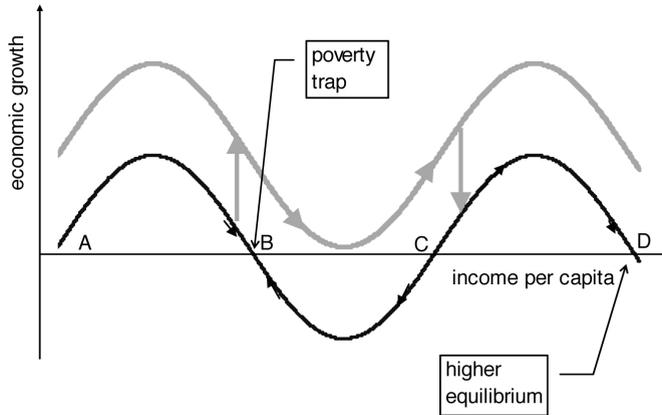


Figure 2. multiple equilibria and the poverty trap.

dynamic path that could be interpreted as jumps out of the poverty trap. I have shown that such jumps should be characterized by multiple-peak growth cycles, i.e. dynamics in which the growth rate of the economy exhibits multiple ups and downs before converging to a new, higher, stable equilibrium. Intuitively, this kind of dynamics can be triggered by a temporary upward translation of the growth curve in Figure 2, sufficiently high to lead for a while to positive growth rates, even for initial income levels located between B and C, as exemplified by the gray curve in Figure 2. If this shock persists long enough to pull the economy above the income level C, then this economy will inevitably converge to the higher level equilibrium point D. An interesting observation emerging from this example is that the jump out of the poverty trap leads to a very peculiar dynamics, in which the growth rate observed over time has several peaks, as exemplified by the growth path materialized by grey arrows in Figure 2. This peculiar dynamics, with a multiple-growth peak, should be actually a common feature of jumps out of the poverty trap (see Berthélemy, 2005, for substantiation of this point).

Emerging and Stagnating Economies

Applying this analysis to long-term data (1950-2002) produced by Maddison (2003), I have shown that this very peculiar dynamics, leading

from low-level income per capita in 1950 (between US\$ 500 and US\$ 1,500) to much higher levels in 2002, characterizes very well a dozen countries that experienced during the 1950-1975 period a very significant economic growth process. These countries are: Botswana, Dominican Republic, Indonesia, Lesotho, Malaysia, Myanmar, Pakistan, South Korea, Sri Lanka, Taiwan (China), Thailand and Tunisia.¹ Henceforth, I shall refer to these countries as the 'emerging' economies. Although for a couple of these 'emerging' economies later performances have been more modest (Myanmar, Pakistan), all of them were in the 1990s much richer than in the 1950s thanks to their initial jump.

For the sake of brevity, I shall call the other countries that were equally poor in 1950 but that did not escape their poverty trap the 'stagnating' economies. In Berthélemy (2005), I identified about fifty such stagnating economies, more than 70 percent of them being in sub-Saharan Africa.²

The Role of Education in Emerging Economies

The important question is to know what triggered the take-off of emerging economies, and this is where education policy comes into the picture.

In general, the initial jump of these economies was observed around the 1960 decade. The explanation for their success must therefore be searched in policies implemented in the 1950s and the early 1960s. In a previous paper (Berthélemy, 2005), I looked at a number of possible explanations using quantifiable variables that may have influenced structural change: education, savings, financial development, economic diversification and demography. None of them, but the education policy, passed simple empirical tests. The average savings and investment ratios, financial depth ratios, manufactured export ratios, population growth

¹ Some initially richer countries also experienced a jump to a higher equilibrium, but they started already in 1950 from a higher level of income, about US\$ 2,000 or more (Brazil, Hong Kong, Mauritius, Seychelles, Singapore).

² These countries are: Afghanistan, Algeria, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, China, Comoros, Congo, Congo (DRC), Côte d'Ivoire, Egypt, Ethiopia, Gambia, Ghana, Guinea, Guinea Bissau, Haiti, Honduras, India, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mauritania, Morocco, Mozambique, Nepal, Niger, Nigeria, Oman, Philippines, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Uganda, Vietnam, Yemen, Zambia and Zimbabwe.

rates and dependency ratio are comparable in the early 1960s for emerging and stagnating economies. Moreover, none of these variables influences in a robust way the probability of belonging to the group of emerging economies (see Berthélemy, 2005 for more details).

With respect to education, emerging economies behave markedly differently from stagnating economies. Although most of them started from a low-level of education at the end of WWII, they invested massively in literacy. In 1960, more than half of the adult population (aged above 15) had attended primary school in South Korea, Taiwan, Thailand, the Dominican Republic, Sri Lanka, Malaysia and Lesotho (Table 1). Exceptions are Pakistan and Myanmar, which did not confirm their initial good performances at the same level as the others, and Tunisia. Political events may explain reversals of dynamic performances observed in Pakistan and Myanmar.³ Concerning Tunisia, figures are strongly biased downward because they do not take into account Islamic schools, which were initially more developed than State schools; moreover, heavy public investment in the education system accelerated later than in the other emerging countries (in the 1960s), a fact that is consistent with the relatively late take-off of this country.⁴

There are certainly a few counter-examples of stagnating economies with relatively good educational performances in the 1960s that would deserve careful analysis. Again, China comes to mind here. In 1970, China's adult literacy rate was already above 50 percent, comparable for instance to Indonesia, while on average the adult literacy rate in sub-Saharan Africa was still about 20 percent only. When China started opening, its literacy rate was about two-thirds, a level that has been barely attained by sub-Saharan Africa today. This China example certainly suggests that human capital building is not sufficient to trigger development. However, it also suggests that it is a good complement to participation in globalization.

Data on educational characteristics of emerging economies at the end of WWII would be necessary to give a better picture of the magnitude of progresses that they achieved between 1945 and 1960. The available information is scanty, but UNESCO collected useful data in the early 1950s on enrolment ratios, which provide some indication on their investment in schooling. According to these data, among the twelve emerging economies

³ In the case of Pakistan, sensitivity analysis shows also that its classification in the emerging countries group is not very robust (see Berthélemy, 2005).

⁴ On growth history of Tunisia, see Morriison and Talbi (1996).

TABLE 1: Human capital in adult population in 1960: emerging economies compared to stagnating economies.

	Proportion of population aged over 15 with primary education	Proportion of population aged over 25 with primary education	Proportion of population aged over 15 with complete primary education	Proportion of population aged over 25 with complete primary education
South Korea	56.2	43.1	52.4	39.7
Taiwan	62.7	53.4	35.4	28.9
Thailand	63.1	51.9	50.3	39.4
Indonesia	32.0	24.5	15.3	9.6
Dominican Republic	64.7	56.6	20.1	17.3
Sri Lanka	72.9	67.7	34.0	28.0
Pakistan	16.9	14.4	4.9	3.9
Malaysia	50.3	41.5	25.2	20.2
Myanmar	26.9	20.4	14.2	12.0
Botswana	34.7	30.7	11.1	10.2
Tunisia	9.0	7.7	5.4	4.6
Lesotho	66.8	60.8	19.2	17.9
Average emerging economies	46.4	39.4	24.0	19.3
Average stagnating economies	25.0	20.1	9.4	7.5

Source: based on Barro and Lee (1996) database.

previously identified, four had primary enrolment effectively compulsory around 1951: Taiwan, Thailand (compulsory since 1935), Korea (compulsory since 1945) and Sri Lanka (compulsory since 1951). Although for Korea and Taiwan this objective was not yet fully attained in 1951 (with a gross enrolment rate around 80 percent, as compared to more than 100 percent in Sri Lanka and Thailand), these two countries were certainly relatively advanced in terms of education at the end of WWII, compared to other developing countries. In Korea, however, the education take-off actually started only after 1945: at that time, close to 80 percent of the population was still illiterate (Lee, 1995). Therefore, only three of the dozen emerging economies (Sri Lanka, Taiwan and Thailand) inherited high

human capital from the colonial pre-WWII period. For the others, good performances already visible in the early 1960s must be credited to policies implemented since 1945.

One may therefore conclude that most of the educational achievements that triggered the economic take-off of emerging economies in the 1960s were the result of new ambitious education policies that these countries had implemented in the previous two decades. They did so under circumstances that were considered by observers at that time as extremely adverse to development, and that were not much different from conditions observed in stagnating economies. In particular, public budgets available for education were not significantly different in emerging and stagnating economies: on average about 2.5 percent of their GDP, in 1960. Better performances of emerging countries in education are related to more efficient education systems, and also to better allocation of educational resources. The better efficiency of education is visible when one compares the proportion of adults who have completed primary education to those who have merely attended primary school. In 1960, the average of this ratio was 52 percent in emerging economies (93 percent in South Korea), against 38 percent in stagnating economies. Also, a larger proportion of resources might have been spent in primary education in emerging economies, compared to stagnating economies. Although no precise data is available to make such comparison on education budgets, several indirect observations point in this direction.

A first piece of evidence is provided by the observation of ratios of secondary enrolment rate to primary enrolment rate. The usual expectation is that this ratio, which can be analytically conceived as an odd ratio (a probability of attending secondary school conditional on primary school completion) should be higher in countries with a higher level of education. However, the stagnating economies had on average, in 1960, the same odd ratio as emerging economies, close to 40%. Relatively to their meager achievements with respect to primary enrolment, the stagnating economies have therefore performed rather well in secondary schooling, but this suggests, particularly in view of their poor aggregate performances, that they had the wrong priorities. In addition, UNESCO data available for the early 1950s suggests that on average a majority of children were already able to attend primary school around 1951 in emerging economies – a performance already much higher than that attained by stagnating economies in the early 1960s –, while, at that time, the odd ratio in those emerging economies was only around 13%.

Also, Asian emerging economies have usually delegated a significant part of the secondary school system to the private sector (e.g. between one-third and 40 percent in the Philippines, South Korea and Thailand already in the 1950s), therefore reducing the relative cost of secondary education in the government budget.

Other, more qualitative, explanations of successes of emerging economies in the 1960s and 1970s could be considered, such as cultural differences. Most of the emerging economies being in Asia, and most of the stagnating economies being in Africa, considering cultural and institutional differences as an alternative explanation is tempting. This also corresponds nowadays to common received wisdom. However, relying on a cultural and institutional explanation to explain the successes of Asian countries in the 1950s and the 1960s is somehow an anachronism. Myrdal (1968), who was one of the most knowledgeable experts on Asia at his time, explained in his famous trilogy 'Asian Drama' that South and South-East Asia would be the last region in the world to develop, due to their many cultural and institutional weaknesses.⁵

3. THE BLEAK RECORD OF EDUCATION POLICIES IN SUB-SAHARAN AFRICA

Trends in Primary Enrolment

Unfortunately, the unfavorable educational performances observed in stagnating economies in the 1950-1975 period have continued afterward. The region that gives greatest cause for concern is sub-Saharan Africa, which is the only region in the world where the education-related objective of the Millennium Development Goals (achieving the 'primary education for all' objective by 2015) is out of reach in a majority of countries.

The only widely available measurement of primary schooling performances is the gross enrolment rate. This data is not very adequate to do cross-regional comparisons, given that repetition rates vastly differ from one region to another. According to UNESCO data, repetition rates (in percentage of total enrolment) are at present much higher in sub-Saharan African (10 percent) than in Asia (2 percent), which means that

⁵ In doing so, he echoed previous similar wrong predictions by Max Weber at the beginning of the last century, about the role of religion in economic development, including a negative role of Buddhism.

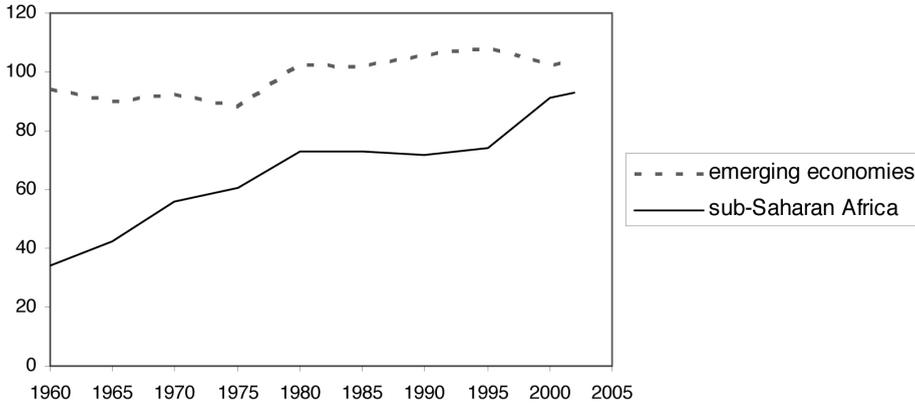


Figure 3. Comparison of gross primary enrolment rates in emerging economies and in sub-Saharan Africa (median, in percent). Source: based on UNESCO data.

comparing gross enrolment rates between sub-Saharan Africa and emerging economies probably overestimates African performances. In spite of this bias, sub-Saharan Africa has been unable in four decades to reach a level that emerging economies reached in less than two decades after WWII. Some progress was observed up until the late 1970s, but this progress stopped between 1980 and the late 1990s, during the period of adjustment programs. One may blame the adjustment programs for this evolution but, from a long-run perspective, the necessity of implementing adjustment programs was only a consequence of the economic non-sustainability of the growth path of stagnating economies: they were unable to escape the poverty trap. With the benefit of hindsight, one may conclude now that the social sectors such as education paid too heavy a price in adjustment. However, the distribution of the costs of adjustment was not determined only by the IMF and World Bank, they also corresponded to political processes in societies where education was not given top priority in the policy agenda.

Recent data suggests that significant progress has been achieved since 1995. Such progress is real, and is associated to successful reforms in education policies in several countries, aiming at providing universal primary education. This progress can be attributed to recent changes in development policies, putting a growing emphasis on poverty reduction strategies. The best-known example is Uganda, which has invested in education a sig-

nificant portion of resources granted by donors through debt relief and new aid inflows and has developed, since 1997, an almost free and universal primary education system. However, the 20 percentage points gain in school enrolment rates reported by UNESCO for a majority of African countries in 1995-2000 seems to be an exaggeratedly optimistic assessment of actual achievements. At least, it is not consistent with a declining trend in public education expenditure as a percentage of GDP, which fell on average in sub-Saharan Africa from about 4.5 percent in 1992 to about 3.4 percent in 1999 according to data reported by the World Commission on the Social Dimension of Globalization (2004).

Recent data available on net enrolment rates in primary education point also to continuously inadequate education investments in sub-Saharan Africa. At present, according to UNESCO data, only Cape Verde, Mauritius, the Seychelles, South Africa and Togo have a net primary enrolment rate reasonably close to 100 percent (90 percent or above),⁶ a performance that was already attained by Asian emerging economies more than three decades ago.

Governance Issues

Poor primary education performance is not only a matter of budgetary resources but also of governance, which is reflected in the way resources are allocated. The bias observed in the early 1960s in stagnating economies, compared to emerging economies, against primary education and in favor of secondary education, has continued in sub-Saharan African countries (Berthélemy and Arestoff, 2003). Moreover, recent UNESCO data shows that expenditure per pupil is much higher in the secondary sector than in the primary sector of education in sub-Saharan Africa, with a median ratio of 2.6 in recent years, as against 0.9 for emerging economies. Data on tertiary education point to a similar bias.

Both the relative bias against primary enrolment and the relatively high expenditure per pupil in secondary and tertiary education benefit the relatively wealthy, and are detrimental to the poor. This bias of public education systems against the poor has been documented in several studies revealing that the implicit subsidy to households, corresponding to

⁶ To this list, Uganda (for which net enrolment rate data are unavailable) may probably be added.

public spending in the education system, has a regressive impact on income distribution. Examples of Madagascar and Tanzania are discussed in Morrison (2002). A plausible interpretation of these biases is that the members of the elite care more for their offspring than for poor children (Berthélemy and Arestoff, 2003). In doing so, they only continue a system inherited from the colonial times, when a small elite received good quality education, while the rest of the population was not offered any education.⁷

A counterargument to my emphasis on primary education for sub-Saharan Africa and other LDCs would be that in the context of technological change concomitant with the globalization process, much more skills are needed to compete in the international market now than four decades ago when emerging economies started their take-off. According to this competing view, African governments might be right in investing relatively more in secondary and tertiary education than did the emerging countries in the 1950s and the 1960s. This point of view has however two limits. First, on social justice grounds, it is hardly acceptable, given that more investment in secondary and higher education, for a given amount of resources, means that a larger number of people are excluded from primary education. Second, on economic efficiency grounds, it is debatable, because, as I shall show in the next section, a large number of highly educated people are unable to use their skills at home in such countries, and emigrate.

Another facet of the poor governance of education systems is that they suffer severe leakages of resources. This has been documented by Reinikka and Svensson (2004) in the case of Uganda where, previous to recent reforms, only 13 percent of funds earmarked by the central government for non-wage expenditure in primary schools were actually received by these schools. Although this example may look extreme, it is also illustrative of the large waste of budgetary resources that may exist in education systems when there are governance problems, a situation that is quite common in sub-Saharan Africa.

⁷ There are a few counter-examples, principally in former Belgium colonies, where the colonial rulers fully delegated the education system to Christian missionaries. Interestingly, these countries have kept more egalitarian education systems than their neighbours.

4. SOME DISTRIBUTIVE CONSEQUENCES OF INADEQUATE EDUCATION POLICIES IN THE CONTEXT OF GLOBALIZATION

The globalization process has several facets. In pure economic terms, it has led to increased trade linkages, labor mobility and capital mobility. On all these three accounts, the poorest people in stagnating economies, which have inadequately invested in human capital, pay the highest cost, and in fact suffer rather than benefit from globalization.

The Factor Content of Trade Argument

The standard trade theory tells us that all countries can gain from exchange opportunities. More specifically, according to this analysis, poor countries could export the services of their abundant uneducated workforce, in exchange of goods produced by skilled labor in other countries. This argument should imply that, in LDCs, the uneducated or poorly educated people are among those who can benefit the most from trade openness. However, this simple theoretical prediction has been contradicted by experience. According to the World Commission on the Social Dimension of Globalization (2004), those who have suffered the most from globalization are the poorest people. This is true in sub-Saharan Africa as well as elsewhere.

The standard argument from trade theory supposes that the uneducated workforce is able to produce commercialized goods, sold either on the domestic market or on the international market. However, the very poor and uneducated people, particularly in sub-Saharan Africa, are peasants who are engaged principally in self-consumption activities, and have therefore virtually no commercial exchange, of whatever nature, with their home economy, let alone with the world economy. They can therefore hardly reap benefits from globalization.

Moreover, peasants who have a surplus, and participate indirectly in international trade through cash crop production, have to rely on other sectors of the economy to be able to export. Usually, commercialization costs represent in fact a higher proportion of primary exports than the traded commodities themselves. Increased exports will maybe imply a higher demand of goods produced by uneducated people, but at the same time this will equally increase demand for much scarcer products such as transport and commercial services. There is no reason, under such circumstances, to expect that income distribution improve in favor of the poor uneducated people.

Another part of the poor uneducated workforce is employed in the informal sector in cities, when they have migrated out of rural areas. However, this does not change the analysis much, given that the kinds of occupation in which they are engaged are mainly related to production of services to individuals, which are non-tradable.

To conclude this discussion, in the terms of trade theory, poor uneducated people may not gain in globalization simply because what they are able to produce are non-tradable goods, or are products that require scarce factors to become tradable.

Under these circumstances, only educational investment that would help transfer this workforce to tradable sectors could help solve this issue. This corresponds to the experience of emerging economies, where universal education has both contributed to increase agricultural productivity – and then to create a tradable surplus in this sector, such as for instance in Thailand and Malaysia – and to increase the mobility of rural workforce to the urban sector. The core of this urban sector has been labor-intensive industries, which have become the principal export activities in these countries in the context of globalization.

International Labor Mobility

Although at a slower pace than for goods and services, globalization has facilitated international labor force mobility. On average, Africans migrate internationally less than people from other developing regions, with the exception of Central and South Asia. The development of international labor migration has however concerned sub-Saharan Africa as well as other regions. The principal difference between sub-Saharan Africa and other developing countries is in the structure of migration by level of education.

Again, the pure theory of international trade would suggest a standard argument saying that more openness to migration should lead to emigration of unskilled labor from developing countries in general, and from sub-Saharan Africa in particular. This is exactly the opposite of what is observed, as shown by Table 2.

In all developing regions, tertiary education graduates tend to emigrate internationally much more than the others. University graduates migrate 6.4 times more than the average in developing countries. This observation may be explained by a pull factor: migration is much easier for the skilled workforce, because they have qualifications that can be directly used in the country of destination, and immigration policies are usually more flexible

TABLE 2. Emigration rates by education level (percent of stock, regional medians).

	Primary or no education	Secondary education	Tertiary education	All education groups	Ratio of tertiary/all groups	Ratio of secondary/ all groups
Sub-Saharan Africa	0.3	1.8	17.8	0.7	25.4	2.6
Central & South Asia	0.2	0.2	2.2	0.3	7.3	0.7
East Asia & Oceania	1.4	3.0	14.8	3.1	4.8	1.0
Cent America & Caribbean	5.8	27.5	36.4	14.0	2.6	2.0
South America	0.8	3.2	6.2	2.3	2.7	1.4
Middle-East & North Africa	0.6	1.5	5.7	1.8	3.2	0.8
All developing countries	0.6	2.2	11.5	1.8	6.4	1.2

Source: based on Docquier and Marfouk (2004).

concerning skilled people. This pull factor can explain the relatively high degree of brain drain out of developing countries. However, it cannot explain the extreme level of brain drain observed in sub-Saharan Africa, where University graduates emigrate 25.4 times more than the average (and graduates from secondary schools 2.6 times more).

There are also, in sub-Saharan Africa, push factors. Skilled people emigrate out of Africa because many young graduates remain unemployed, and the levels of salaries that they can obtain elsewhere are much higher than what they can get at home. A first explanation of this observation is related to the structure of education policies that I have discussed in the previous section: for having invested too much in secondary and tertiary education, African countries have in fact produced graduate unemployment more than anything else. Certainly, this overall assessment must be qualified in the case of some specific sectors. Technically qualified personnel, such as engineers or physicians, are often lacking. However it should be noted that those who are technically qualified also emigrate quite a lot. In the case of physicians, the massive emigration out of some African countries is partly responsible for a crisis in the health sector; only a minority of trained physicians and nurses choosing to work at home. This observation points to a second explanation: the very adverse working environment for technically skilled personnel, who have usually no equipment to work with and low salaries.

Capital Mobility

Capital mobility is another aspect of globalization that has been beneficial to a number of developing countries. The best example is again China, which is the second largest recipient of foreign direct investments after the United States. Berthélemy and Démurger (2000) have shown that, in the case of China, FDI and economic growth are interacting both ways. This kind of dynamic interaction can contribute to reinforce multiple equilibria: while the Chinese economy gains a lot from FDI that it receives, its economic performances are also contributing to strengthen its ability to attract new investments.

This example suggest that capital inflows, and in particular FDI, are only accompanying economic successes, contributing to accelerate the process of divergence between emerging and stagnating economies.

It is also possible that education policies play a direct role in FDI attraction. At microeconomic level, except in mineral and oil rich countries, foreign firms invest in developing countries where they can find competent workforce. There are of course many other factors influencing FDI, such as market size, credibility of government policies or political stability.⁸ But the lack of a competent workforce may contribute, together with the cumulative processes mentioned just before, to the poor record of sub-Saharan Africa in FDI attraction (Table 3). Per capita, this region has received so far 2.7 times less FDI than the average developing country. If one considers only those countries that are not mineral and oil rich, the ratio is 1 to 7.

TABLE 3. stock of inward FDI in 2003.

	US\$ billion	US\$/capita	% of GDP
World	8245	1308	23
Developed countries	5702	6532	20
Developing countries	2280	448	31
Sub-Saharan Africa	116	166	28
Of which:			
<i>oil and mineral rich</i>	93	267	30
<i>non oil and mineral rich</i>	23	65	21

Source: based on UNCTAD database on FDI.

⁸ There is a vast literature on FDI determinants, which goes much beyond the scope of this paper. See for instance Navaretti and Venables (2004).

Therefore, both directly and indirectly countries with poor education policies have no chance to take advantage of capital flow movements that have been stimulated by globalization. The only exceptions are countries that have attracted FDI in extractive industries. At least in sub-Saharan Africa, however, such foreign investments have rarely contributed to economic development.

5. THE CONTENT OF EDUCATION

So far, I have discussed various aspects of the consequences of poor allocation in education investments, to show that in LDCs, particularly in sub-Saharan Africa, inadequate investment in literacy has created a major obstacle to economic take-off. Such inadequate education policies are intrinsically linked to governance issues. Governments have invested in the education of children of a relatively wealthy part of the population. The globalization process has only exacerbated the adverse consequences of this weakness. Very recently, thanks to the development of new poverty reduction strategies supported by the international donor community, more attention has been paid to these issues, and progress, although probably overstated in reported statistics, is now on its way. However, such quantitative progress will be translated in actual development only if it comes together with changes in the general objectives and orientations of education policies.

Inevitably, the governance issues that have so far influenced education policies in LDCs have had adverse qualitative consequences as well. The best-known aspect of this problem is linked to rent-seeking behaviors. In sub-Saharan Africa, a majority of people who have been enrolled in the secondary and higher education system have received general rather than technical education. Graduating from this system has for a long time been merely considered as providing access to civil service positions. This is the result of both supply and demand factors. Civil service positions are sought because they provide the best rent opportunities, in societies where rent seeking comes along with governance deficiencies such as corruption. Moreover, the content of education that is offered also influences activity choices of graduates from this education system.

The content of education is to a large extent a result of general objectives and priorities of education. An analysis of information available on such objectives and priorities provides in fact evidence of quite significantly different orientations of education policies among developing countries.

Comparing these orientations suggests that the weaknesses observed in sub-Saharan Africa are in fact deeper than what is suggested by a purely quantitative analysis.

Various Goals of Basic Education Policies

At the Jomtien conference in 1990, an international consensus was reached on the various goals of the 'education for all' objective:

1. *Every person – child, youth and adult – shall be able to benefit from educational opportunities designed to meet their basic learning needs.*

These needs comprise both essential learning tools (such as literacy, oral expression, numeracy, and problem solving) and the basic learning content (such as knowledge, skills, values, and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions, and to continue learning. The scope of basic learning needs and how they should be met varies with individual countries and cultures, and inevitably, changes with the passage of time.

2. The satisfaction of these needs empowers individuals in any society and confers upon them a responsibility to respect and build upon their collective cultural, linguistic and spiritual heritage, to promote the education of others, to further the cause of social justice, to achieve environmental protection, to be tolerant towards social, political and religious systems which differ from their own, ensuring that commonly accepted humanistic values and human rights are upheld, and to work for international peace and solidarity in an interdependent world.

3. Another and no less fundamental aim of educational development is the transmission and enrichment of common cultural and moral values. It is in these values that the individual and society find their identity and worth.

4. Basic education is more than an end in itself. It is the foundation for lifelong learning and human development on which countries may build, systematically, further levels and types of education and training (UNESCO, 1990).

The way these common goals are implemented by governments depends however a lot on the specific orientation of national education policies. To illustrate this, and to compare the objectives pursued by dif-

ferent countries, I use a recent database produced by the International Bureau of Education of UNESCO,⁹ which documents in an harmonized framework, and with a rather high degree of detail, general principles, priorities and organizational characteristics of national education policies of UNESCO member countries. Reports are produced by UNESCO staff, but they are based on information provided to them by governments. Such policy declarations are sometimes not entirely credible, concerning for instance compulsory primary education, but comparing such declarations already reveals vast differences in education policy, general objectives and priorities.

I shall discuss below two broad aspects, which are central in the role of education policies as a response to the globalization process, and fit naturally in the framework of the Jomtien declaration:

- The first point relates to the direct role of basic education in economic development, as a way to improve productivity of labor, which is, particularly in the context of globalization, a strategic aspect of the competition of nations.
- The second relates to the capacity of a nation to preserve its culture, at a time when the globalization process tends to uniformize culture globally.

Education and the Development of Workforce

In an economic perspective, the most direct effect of education policies is to improve the capacity of individuals to participate effectively and efficiently in the process of production of goods and services. As suggested earlier, such policies have played a major role in the development of emerging economies, and still contribute today to explain economic stagnation of LDCs, notably in sub-Saharan Africa.

The important point here is that the role of school education is not only to provide literacy. It has also a role to play in labor productivity enhancement, by giving individuals technical and professional competencies, or at least the basic knowledge background necessary to acquire these skills later; it may also help develop a culture of labor.

An analysis of general objectives and priorities of education policies of developing countries, as they are reported in the UNESCO database reveals

⁹ In this paper I utilize the 2004 electronic release of this database, available at <http://www.ibe.unesco.org/>

vast differences among them in this respect. Certainly, almost all countries mention economic development as one of the general objectives of their policies, but many fewer go beyond vague statements about economic development, and mention explicitly the role of labor productivity in development. Keywords such as 'labor market', 'manpower', 'workforce', 'work oriented education', 'productive labor', 'world of work', are repeatedly mentioned by a vast majority of Asian governments, and much less by African governments.

More precisely, the labor improvement content of education is reported as being a priority or a principal objective in school education policies in more than two-thirds of developing countries in Asia, against only one-third in sub-Saharan Africa – and a half in Latin America and the Middle East and North Africa region (MENA). In my group of 'emerging' economies, all governments reporting to UNESCO consider the labor market orientation as a priority or a principal objective.¹⁰ Conversely, the vast majority of my 'stagnating' economies do not give such a role to education. There are however some noticeable exceptions: Benin, Congo, Ethiopia, Kenya, Madagascar, Mozambique, Senegal, Sudan and Zimbabwe.¹¹ Of course, such information inform only about the recent orientation of education policies, which may have changed over the past half-century. It is however striking that education policies have an explicit labor market orientation principally in countries that are developing fast, and in which education has played a central role in the economic take-off process.

Education and National Culture

The previous analysis suggests that African countries pay much smaller attention to the economic objectives of education. Do such countries pay more attention to other aspects of education that may help a nation to face the globalization challenges, notably the protection of national culture? A count of countries that mention the key words 'culture' or 'cultural' in the priorities and objectives of their education policies shows that sub-Saharan Africa is the region that pays the smallest attention to cultural objectives in education policies. Only 15 percent of African countries report that culture

¹⁰ Myanmar is not reporting.

¹¹ Certainly, more research would be necessary to identify what is different in these countries, compared to other African countries.

is to some extent central in their education policies, as against 21 percent in Asia, 50 percent in Latin America and 58 percent in MENA.

In MENA, the significant importance attached to culture in education is related to the major role played by religion and morals in their public education policies. These countries pay far more attention to such values in their education policies than other countries: moral and religious education is mentioned by 84 percent of these countries, as against only 23 percent in sub-Saharan Africa. In Asia, Muslim countries have the same orientation, and correspondingly moral and religious education plays a significant role in 38 percent of Asian developing countries (principally in Muslim countries). In Latin America, moral and religious education is very rarely mentioned in priorities and general objectives of education policies. Even though religion plays a significant role in such countries, their education policies are characterized by a principle of laicism. Therefore, the significant role that they give to culture in their education policies has a different meaning: they pay much more attention than other developing countries to the preservation of cultural heritage.

Other Dimensions

Previous findings suggest that sub-Saharan Africa is the only region where education policy does not pay attention to the major challenges of globalization that are economic competition and the competition of cultures.

Do these countries attach more importance to other general objectives of school education, as they are for instance described in the Jomtien declaration? Again, several observations suggest a negative answer.

Consider the objective of building political and social cohesion. Only one out of four countries gives a role, in its education policies, to citizenship education, which is the same proportion as in Asia and in Latin America. The only region where citizenship education is frequently mentioned is the MENA region (with a little more than half of the reporting countries). My previous observations on the relatively inequitable nature of education policies in sub-Saharan Africa, where the poor are rarely at the center of education policy orientations, reinforce my conclusion that school education policies are not characterized in sub-Saharan Africa by strong social objectives.

Finally, a last fundamental aspect mentioned in the Jomtien declaration relates to sustainable development and the environment – an area

that is also becoming a major source of concern in the context of globalization. Whatever the region, very few countries mention the keyword 'sustainable development' in the priorities and objectives of their education policies. Although sub-Saharan Africa does behave worse than other regions in this respect, this is not a dimension in which African governments invest significant efforts.

In sum, sub-Saharan Africa appears as the only region in the world where education policies are not characterized by any of the usual fundamental objectives that one may attach to school education. This observation is consistent with views expressed by African experts, such as Ndoye (2005), who describes the African school as essentially an imported product, imposed by colonial powers before independences, and in some countries previously imported from the Arab world. Among other aspects, education languages that are used, particularly in francophone Africa, provide powerful indication of this alien nature of the African school systems: education is delivered in French, which is generally the official language, but can be considered as the usual communication language of only a fraction of the population (again, the relatively wealthy, rather than the poor).

6. CONCLUSION

In developing countries that have been able to emerge over the past half century, education has always played a major role. It has helped develop workforce productivity and triggered economic take-off. Countries that had been able to emerge in this way before the globalization process have been among the principal winners of this process. Comparatively, countries that stagnated, at least in part due to inadequate education policies, in the 1950 to 1970 decades, have generally been unable to benefit from globalization.

Moreover, the poor uneducated individuals are, in LDCs, among those who suffer the most in globalization, notably because they are usually not engaged in tradable activities. Conversely, the globalization of labor markets has accelerated the brain drain, with a very large proportion of highly educated individuals emigrating from LDCs.

Education policies need to be reformed not only in quantitative terms, but also qualitatively. One striking characteristic of education policies implemented in most African countries, in particular, is that they are not based on strong priorities related to any of the main objectives of the Jomtien declaration on 'education for all'. Their education policies are

poorly adapted to answer the challenges created by globalization, regarding both economic competition and the competition of cultures.

Reforming education policies in LDCs is the sole responsibility of their governments. Although they are resource poor, what is usually lacking is less budgetary means than political will. Poor performances in the education sector are often linked to governance issues, and are reflected in the absence of any strong development objective in education policy orientations.

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CULTURAL DIVERSITY AND EDUCATION IN AN INCREASINGLY GLOBALIZING WORLD (FROM THE PERSPECTIVE OF A 'DEVELOPING COUNTRY')

MINA M. RAMIREZ

A. INTRODUCTION

The Setting

This paper is being written from the perspective of one who has long been associated with a Manila-based social science graduate school of social transformative praxis towards Justice, Peace and Integrity of Creation.¹ The Institute I am referring to is Asian Social Institute (ASI),² established in 1962 to facilitate the training and formation of social development managers and facilitators who through social science studies and Christian social teachings will acquire a comprehensive understanding of the complex situation of modern and (now) post-modern life in order to promote equity of life chances.³ ASI's frame of reference is the majority of

¹The mission elements of ASI are: Christian in inspiration; ecumenical and interfaith in reality assessment, action, reflection and celebration; grassroots in orientation; Asian in character; global and cosmic in perspective; interdisciplinary in approach; experientially and culturally grounded; humane, creative and liberating in process.

²The Institute was founded by a Dutch Missionary Priest of the Scheutist Fathers with the blessings of the Archdiocese of Manila 'to train socio-economic leaders for the Philippines and Asia' in the light of Christian social teachings and to assist in bridging the gap between the rich and the poor.

³Three integrated departments of ASI contribute to the formation and training – the Academe Department; Research, Communication and Publication Department and the Social Development Department. The latter department is involved with facilitating the self and community empowerment of grassroots partner communities (fisherfolk, farm-

the materially poor in the Philippines and Asia. A significant number of our social science bachelor and masteral graduates in Economics, Sociology and Social Work and doctoral program in Applied Cosmic Anthropology are from Japan, Taiwan, Korea (East Asia); Vietnam, Myanmar, East Timor, Malaysia, Indonesia, Thailand, Indonesia (South East Asia); India, Pakistan, Sri-lanka and Bangladesh (South Asia). From its international two-months' diploma course for Community Development Workers, we have had graduates also from Papua New Guinea and Cambodia. Our Filipino students still compose the great majority of students and come from different sub-cultures.

The Philippines as the second largest archipelago in the world (the first being Indonesia) spans various ethnic groups. There are 11 major languages and about a hundred dialects. English has been the medium of education for a little more than a hundred years while for about 350 years from the 16th to the 20th century, Spanish was the language of the highly schooled known as the *Ilustrados*. There is a national language but this is spoken only by one ethnic group and comes to be understood by many through movies and television shows. The Filipino language is Sanskrit in origin, about 2000 words of which are similar to *Bahasa Indonesia*. Presently, the national language has a sprinkling of Chinese and Spanish words.⁴

This setting demonstrates the challenges of educating students of diverse cultures and sub-cultures with English as the medium of education. It is also important to note that the Philippines as a country is somehow unique in Asia because, together with a new country, Timor Leste, it is the only country where the great majority of people are baptized Christians. While the earliest peoples of the islands were considerably influenced by the cultures of Hinduized empires of Southeast Asia and

ers, urban poor, indigenous groups) from which experiences the Academe theorizes from. One of the pedagogical approaches in ASI is immersion in these communities. Both its pedagogy and research maintains the following characteristics – contextual, experiential, processual, and participatory. The research process becomes integral to transformation together with education, organization and action.

⁴ Sources of historical facts: Corpuz, O.D. *The Roots of the Filipino Tradition* (Vols. I & II), Philippine Centennial (1898-1998), Edition (Manila: Aklahi Foundation, Inc., 1989); Corpuz, O.D. *The Philippines* (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1965); Teodoro Agoncillo and Oscar H. Arellano. *A Short History of the Filipino People* (Quezon City, Philippines: University of the Philippines, 1961); Carroll, John J. (ed.) *Changing Patterns of Social Structure in the Philippines*, (Quezon City: Philippines: Institute of Philippine Culture. Ateneo de Manila, 1963).

their Muslim successor states, the Spanish influence is quite evident in its socio-religious practices. The Anglo-Saxon influence through English as the medium of instruction, has become the 'vehicle of ideas distinctive of the culture of English speaking peoples, the most important of which are those ideas of democratic government which have been incorporated in the Constitution of the Republic'.⁵

Culture

I define culture as a collective way of thinking, feeling, doing, relating and thus of being. The deepest layer of culture is a core of life-values emerging from a world-view that is influenced by persons' transactions with their particular natural and social environments. Culture more often than not is unconsciously more than consciously lived among a people. The externalization of the worldview is the institutions which are shared enduring patterns of behavior in response to life-needs.⁶

In developing countries, particularly in the Philippines, the crux of social problems lies in the taken for granted reality that institutions – polity, economy, education, communication and religion – have largely been imposed on colonized people. Western culture which has come through the formal educational system is what I call the 'dominant culture', a culture so powerful because its main symbols are money and high technology. Highly schooled people speak in Western categories without having re-rooted themselves in their indigenous wisdom. People cannot enjoy a sense of well-being due to 'cultural imperialism', i.e. violence of the mind and heart from external and local colonialism. I believe that in every developing country, this alienation from peoples' respective indigenous cultures (that culture that comes to them through the vehicle of their indigenous languages, their arts and artifacts, their community patterns of behavior, and their indigenous spirituality) have been suppressed and relegated to the background. Moreover, this cultural alienation comes with desecrating the natural environment – their natural capital – their land, their waters and the air. Yet, in times of crisis and celebrations, the indigenous and popular cultures assert themselves. It is basically one that assigns weight

⁵ Horacio de la Costa, S.J. , 'History and Philippine Culture', *Philippine Studies*, IX:2, April, 1961, p. 346.

⁶ Ramirez, Mina. Reflections on Culture. Occasional Monograph 2 (Manila: Asian Social Institute, 1993), p. 14.

to personal relationships and to family and community. In dealing with cultural diversity in relation to promoting equity of life chances we cannot but accept the fact that the 'socio-cultural imperialism'⁷ by colonializing powers and to a great extent maintained by local colonialists has been further enhanced by economic globalization. It appears as a new form of colonialism not only from outside the developing countries but sometimes by people's respective governments as well.

Education and Culture

Education is the process of cultivating human potential in a person so that s/he can contribute to his/her personal growth as well as those of others. Quality education, according to UNESCO-APNIEVE (Asia-Pacific Network for International Education and Values Education) nurtures competence in learning, doing, relating – a way of being – in a Globalized Community as well as values based on the dignity of the person and integrity of creation.⁸

The Human Development Report of 2004 by the United Nations Development Programme (UNDP) focused on 'cultural liberty in today's diverse world'. The report responds to the question of 'how to build

⁷ A term used by Edward T. Hall to signify how educators like the missionaries of the past practice an unconscious form of cultural imperialism which they impose indiscriminately on others. 'In certain contexts', according to him, 'the structures of culture and education are synonymous, and we can learn about one by studying the other...' referring 'to how learning is organized, how it is presented, its setting, the language used, and the people who teach it, the rules by which they play as well as the institutions themselves', cf. p. 206 of Edward T. Hall, 'Cultural and Primate Basis of Education', *Beyond Culture* (Garden City, New York: Anchor Books, 1977).

⁸ UNESCO-APNIEVE has developed Sourcebooks for Educating Asians by a team from the Philippines, Australia, China, Korea, India, Malaysia, Thailand, USA, and Samoa. The APNIEVE'S shared vision, for the future of the Asian region encompasses:

- the elimination of all forms of discrimination
- the protection of human rights and democracy
- equitable, balanced, human-centered and sustainable development
- protection of the environment,
- the integration of contemporary and traditional humanistic values, morals and ethical principles.

(Cf. p. 6, UNESCO-APNIEVE Sourcebook n. 3 Learning to Do. Values for Learning and Working Together in a Globalized World edited by Lourdes R. Quisumbing (Bonn, Germany: Unesco-Univoc, 2005).

inclusive, culturally diverse societies'... for, in economics and health as well as in education, 'allowing people full cultural expression is an important development end in itself'.⁹ For education to succeed, it should take off from the culture without making the culture stagnant. What is important is that people develop a collective self-understanding of themselves, an understanding of how they think, feel, do things, and relate with others in the family, community and society, and in relation to their aspirations towards total well-being, discover what elements of their indigenous culture as well as the cultural elements imbibed from other groups outside of themselves and from the West could be blended towards fullness of life now and in future generations. To nurture dynamism in one's culture, educators could stimulate a reflection on culturally rooted paradigms which through the years have had accretions of elements from other cultures inclusive of those which have been imbibed from colonization. In such a reflection, the question under consideration is to what extent people of developing countries could be awakened to the evolvement of a renewed integrated culture of the dominant (culture imbibed from Western colonialism) and the popular cultures that will sustain life and all life forms for the wellbeing of families now and future generations.

⁹ Cf. p. v; pp. 13-22. The following selected ideas relevant to this paper are highlighted in the HDR 2004 as articulated in its overview:

- A sense of identity and belonging to a group with shared values and other bonds of culture is important for all individuals. But each individual can identify with many different groups.
- Cultural liberty is the capability of people to live and be what they choose.
- Nearly all societies have undergone shifts in values and social practices among people of different religions.
- Cultural liberty is a human right and an important aspect of human development and thus worthy of state action and attention.
- Several emerging models of multicultural democracy provide effective mechanisms for power sharing between culturally diverse groups.
- Multicultural policies that recognize differences between groups are needed to address injustices historically rooted and socially entrenched.
- Individuals have to shed rigid identities if they are to become part of diverse societies and uphold cosmopolitan values of tolerance and respect for universal human rights.

B. THE PHENOMENON OF GLOBALIZATION AND HOMOGENIZATION OF CULTURE

Globalization

The term 'globalization' is associated with the worldwide dominant system in the economic sphere. The economic global context is characterized by *liberalization* – a free flow of goods and capital – across countries, *privatization*, i.e. all public industries and services tend now to be owned and managed by private corporations. This move is aimed at more efficiency in production and high competition in the delivery of services, and *de-regulation*¹⁰ which curtails state and even U.N. interference in the law of the market. It is thus experienced that advocacy for social legislation diminishes. There is the tendency to view labor as merely a cost of production. Technical sciences score high in educational preferences. Liberal arts education – humanities, social sciences and religious studies – are not as highly valued in the context of a commercialized world. In fact even education becomes commercialized.¹¹

The global economy is supported by the rapid pace of technology – nanotechnology, bio-technology, info-technology and cognitive technology. One thinks of how education would cope in a situation where people surmise that technology would take over completely the process of thinking due to robotics.¹²

¹⁰ 'The phenomenon of globalization is a complex multi-faceted reality. Well put by Prof. Paul Dembinski, globalization has been driven by "technological progress; supremacy of the ethos of efficiency; and open society and free market ideology" leading to the unlimited expansion of economic activity. The volume of trade in money is very much more than trade in goods and services. Together with the World Trade Organization are the main key players of Globalization which are the transnational business corporations or the "Very Big Enterprises" (VBE). By the fact that they master markets, have a command of technology, and maintain an access to finance makes other smaller enterprises dependent on them' (a summary of Prof. Paul Dembinski, 'The New Global Economy: Emerging Forms of (Inter)Dependence', as summarized by Mina M. Ramirez, p. 403 in *Globalization, Ethical and Institutional Concerns* (Vatican City: Proceedings: Seventh Plenary Session, 25-28 April 2001, 408 pp.).

¹¹ Cf. Court, Pedro Morande, *The Impact of Globalization on Cultural Identities, Ibid.*, p. 194: There is... relative deterioration of classic education and its growing substitution to the preference of the plaintiffs for technical disciplines of high social prestige motivated by expected profit for the corresponding formation of human capital, p. 202).

¹² Cf. Gardner, Howard, 'An Education for the Future', Amsterdam, March 13, 2001. In this paper, he mentions the advance in nanotechnology, the genetic revolution, robot-

Globalization undoubtedly creates all kinds of 'divides' and 'disconnects': There is the economic divide, social divide, cultural divide and digital (See UNDP Report of 1999). There is the widening gap between countries and among countries. Values upheld are competitiveness, extreme individualism, consumerism, materialism, 'having' (not being). All institutions including educational institutions become more market-driven than vision-mission. Organized greed is experienced as opposed to organized care.

The great majority of peoples in most developing countries living in rural villages has been and is becoming unconsciously uprooted from their traditional indigenous cultures by major social changes – industrialization, urbanization, mass education and mass media. Presently, these processes are hastened by a highly capitalistic globalization. In families and communities of former times, there was once a high degree of mutuality and reciprocity. Economic life was characterized by natural exchanges of goods and services (barter). Social life was regulated by a simple multi-functional organization where communication is unmediated – a face-to-face interaction. However, the dominant culture that emerged through colonialism revolved around the system of a monetized economy. The personal solidarity (particularism) has been replaced by impersonal solidarity through law (universalism). The West, on the one hand, especially Western Europe has had the time to balance capitalism with socialism through social legislation and the operation of welfare states. The developing countries, on the other hand, will have to leap into resolving the gaps by a socially relevant educational system which itself, however, tends to support the market. A life that used to rely on the abundant bio-diversity of resources from the seas and the land when countries were scarcely populated have been devastated through exploitation of natural resources by foreign and local colonialists. The induced social institutions that artificially developed and thus alien to the great majority have not integrated the dominant and the popular cultures in pursuit of fullness of life for all.

Economic commercialized globalization and the rapid advance in information technology tend to commodify everything including human beings and the natural elements of life – water, soil, air. This has threatened families, communities and their integral relationship with the environment.

ics, artificial intelligence, which according to him might even create new species by accident and design. In this context, he outlines the dilemmas educators are confronted with and he says, 'anything predictable and rule oriented will be automated. Only those persons who are broadly and flexibly oriented will be able to function productively in this new world'.

*Homogenization of Culture*¹³

The dominant culture revolves around the legacy from Western colonization. Not that Western culture is basically materialistic. On the contrary, it has made the highly schooled acquire a taste not only through an understanding of reality through logic and mathematics; it has also transmitted to developing countries the appeal of Western aesthetics, music and art forms and the richness of Christian tenets and philosophies that emphasize the dignity of the human person. However there is the realization that no one can live without money anymore – ‘Nothing is free, everything is bought’, as some people in the developing countries would say. In this light education tends to respond to the need of the person for a lucrative employment or profitable business ventures. Yet the discipline of the monetized economy is alien to the great majority of the rural population. There is the unfamiliarity too of the role of financial institutions. With the school system patterned after the colonizing powers, the resultant worldview has been materialistic and mechanical although the people ironically are basically religious.

The imbibed Western culture has its roots as far back as the enlightenment¹⁴ in Europe which spawned all kinds of revolutions – the scientific and the industrial revolution. Since then the ‘factory’ has become the metaphor of social life operating on the concept of ‘division of labor’. Transferred to

¹³ Cf. Goulet, Dennis, ‘The Evolving Nature of Development in the Light of Globalization’, *The Social Dimension of Globalization* (Vatican City: Pontificia Academia Scientiarum Socialium, 2000), p 44: ‘The most recent assaults of globalization have come from cultural voices troubled by the apparent ineluctability with which globalization, and its attendant standardization destroys cultural diversity and vitality and the possibility for human communities to be genuine subjects of their own social history’; see also what happens to culture in the process of economic globalization as discussed in the paper of Court, Pedro Morande, ‘The Impact of Globalization on Cultural Identities’, *Globalization Ethical and Institutional Concerns* (Vatican City: Proceedings Seventh Plenary Session, 15-18 April 2001), pp. 189-205 and pp. 206-216, comments by M.M. Ramirez, P.L. Zampetti and M.S. Archer; also, pp. 62-66 on the cultural aspects of globalization by Restrepo, Sergio Bernal, ‘The Social and Cultural Dimensions of Globalization’, *The Social Dimension of Globalization*, *op. cit.*

¹⁴ Ramirez, Mina, ‘Spirituality and Total Human Development’, *Spirituality Face to Face with Globalization* (Manila: Center for Spirituality), pp. 121-136. The writer draws heavily from commentaries of Western authors such as Fritjof Capra, Tuoti, S.J. and Edward T. Hall, of Western civilization and culture ushering in a new consciousness towards a more ‘ideational culture’, an organic and spiritual worldview breaking through in the 21st century.

educational life, the linear rationalistic style of thinking brings students from classroom to classroom and at the end, they are called 'products'.

With commercialized globalization which is but an accelerated pace of colonialism (violence of mind and heart), the dominant culture revolves around a life-style that is characterized by 'the good life' that commands a monetary value and communicated by subliminal messages through media. The appeal of a 'good life' leads to migration from the rural areas to the city, and from there to other countries.

Education is perceived mainly as a means of social mobility. For education will create employment; employment brings income that makes one afford the 'good life'. Professional courses are set up in order to entice students to studies that will create a rewarding employment either in the country or abroad.

The dominant culture which revolves around the monetized economy and enhanced by economic globalization homogenizes culture. The evidences of these are the fast food chains (in the standard of McDonald, Kentucky Fried Chicken, Wendy's) and international brands in attire, cosmetics, shoes, and toys – some of them produced in developing countries due to cheap labor. Media is the advocate of this world dominant culture. English has become the world language because it is also the language of technology. The industrial militaristic worldview is behind the language as we begin to use its categories of: 'strategic' planning, 'target' group, 'product' when referring to the graduate of a school, and expressions like 'package a course', 'make your outline in bullet points', 'shoot two birds with one stone'. In evaluating students market-driven language is used. For instance, in one Catholic educational institute catering to upper-middle class students the students are considered as 'customers' and the goal of evaluating the educational approaches is to 'measure customer satisfaction'.

The dominant culture tends to disregard ancient wisdom rooted in Asia, whose religions and philosophies that constitute the dynamic dimensions of culture have given importance to 'body-mind-spirit' unity as well as the inner reality through meditative practices. In Asia, harmony and balance are significant values. Most indigenous cultures in Asia have an integral relation with their environments. The quality of relationship is highly valued. The dominant global culture according to enlightened intellectuals of developing countries is a basic intrusion into the development of institutions and life-styles of Asian peoples. This lifestyle symbolizes a monetized, commercialized, materialistic and mechanical culture. Through this culture, the wholeness of life has been fragmented. There is fragmentation of the body, mind and spirit. There is fragmentation of families, communities

and institutions. What is present on the global level (macro) is experienced at local level or institutional level (mezzo micro) and at micro levels (family and community) Formal education deals less and less with the intangibles of life (philosophies, humanities, social sciences, and religious studies). The subjective and the inner reality are de-emphasized for the sake of objectivation, uniformity, standardization and rigid rules leaving no space for a consideration of cultural diversity and flexibility. Even God is made to be contained in a concept instead of being experienced.

The world of globalization has emphasized the external, the objective, the physicalistic side of created reality ... and less on the finest artistic expressions of the soul of a people and sacredness of the natural environment.

This observation is worth noting:

Globalization has undermined the economic base of diverse local and indigenous communities all over the world. Growing domination of global media by a few countries and companies has led not to greater diversity, but to an increasingly uniform culture of corporate globalization.¹⁵

C. EDUCATION AND RESPECT FOR CULTURAL DIVERSITY

The mission of education today is to promote life in its wholeness, to bring into communion and solidarity in the light of authentic globalization the finest expressions of diverse cultures, expressions of human dignity through creativity in work, loving relationships, and challenges amidst suffering brought about by severe objective limitations of the environment. This objective appears 'unrealistic' at this time in the context of a dominant economic system that has introduced a materialistic, consumerist and mechanical worldview. Unknowingly or even unconsciously this worldview gets embedded in the school system even as it teaches religion. Courses and programs are judged of quality and of excellence when they could be 'internationally competitive'.

Based on my experience of educating students from different countries in Asia, each country having also to contend with variations of major cultures and with the reality of globalization, I would like to propose several postulates with regard to 'cultural diversity and education in an increasingly globalized world'.

¹⁵ Bieber, Jeremy, Tim Costelo, Brendon Smith, *Globalization from Below. The Power of Solidarity* (Cambridge Massachusetts South End Press, 2000).

1) First Postulate: *The imperative of respect for cultural diversity is premised on the dignity of the human person. In most religious persuasions this human dignity is enhanced by a faith conviction that all are called to live as children of God.*

It is our experience that persons begin valuing their human and divine dignity when they can contribute to something bigger than themselves. In as much as every person is unique in his/her giftedness, culture which is a creation of a collectivity of people is also to be regarded as unique. Any person feels his/her dignity in whatever he produces or creates be this an idea, an invention, a product, an artifact, musical composition, a dance, an architectural design, an artful performance of a skill, a service, a way of relating to the natural environment and to the transcendent. Analogously, every community in the context of its natural resources and shared human qualities exhibiting their unique local and community culture through their institutions will evoke a rightful community pride and sense of dignity.

2) Second Postulate: *Education towards Respect for Cultural Diversity begins with one understanding his/her culture through a process of learning.*

Because culture is a taken-for-granted reality in a local community, any person cannot assume that he/she understands himself/herself in his/her culture except through a process of learning about it. Integral to educating students is facilitating sensitivity to one's cultural roots. This necessitates a reflection on one's assumptive world underlying his/her local or indigenous language, shared patterns of behavior, informal institutions revolving around the natural characteristics and social environments, the meanings attached to physical and social objects, the way one relates to one's inner life and to the Transcendent. The phenomenological approach is useful to understanding one's culture. It is a method in human and social science where primary experiences become the data for understanding a phenomenon. Thematic reflection on primary experiences and further reflections on the relationships within the themes made explicit from the experiences could lead to the 'eidetic insight' of the essence or 'eidos' of the phenomenon being examined. In having used

phenomenology as an approach to understanding the Filipino family, I described phenomenology¹⁶ thus:

Phenomenology is an approach in sociology based on the human character of the subject matter of the discipline. As a specifically human approach, it uses lived experience (the consciousness of social phenomena) as facts on which to base its insights.

A phenomenologist in sociology is concerned about discovering the system of values and the social structures as these are living in persons within a society. Thus, a phenomenologist who wishes to understand a certain type of social phenomenon is expected to make explicit his/her own consciousness and experience of the social phenomenon being studied, reflect on the meaning of each experience (by making a thematic reflection), and relate this meaning to the general natural and social situation as well as to the history of that situation. Each experience must be seen in a horizon, i.e., related to the totality of one's experiences (in as much as this is possible) and those of others.

The social phenomenon being studied may be seen from different standpoints or in different profiles. Each standpoint or profile may reveal certain themes. The task of phenomenology is to find out how the themes in each standpoint or profile are linked and, from this, draw out the interrelationships among different standpoints and profiles. In this way, phenomenology unveils layers of meanings about the social phenomenon being studied. It strips the phenomenon of all surface appearances to bring out one's perception of the 'perceived nucleus of truth'.

Phenomenology is an approach in research by which the subjects of research may know and question themselves, and consciously reflect on the reality of their lives and their bio-socio-cultural milieu. Thus, this approach is also a pedagogical approach to create equality between a researcher and subjects of research, between so-called change agents and the subjects of change, between teachers and students in a common search for understanding or in striving to understand the meaning of a phenomenon.

¹⁶ Ramirez, Mina, *Understanding Philippine Social Realities Through the Filipino Family. A Phenomenological Approach* (Manila: Published by the Asian Social Institution in cooperation with the World Association of Christian Communication, 1993), p. 17.

How is one validated in his/her understanding of his/her culture? This is through inter-subjective validation from those who have similar experiences. This is what I sometimes call as the 'unmasking' of the reality. When an insight is being communicated, it becomes an 'aha' experience, a resonance in the minds and hearts of others causing them to exclaim 'Yes, that is indeed true'.

3) Third Postulate: *Immersion into another's culture can be a pedagogical approach to understanding of one's culture as well as that of another one. It makes one more sensitive either to an appreciation or perceived dysfunctions of his/her own culture to a desired state as well as of the culture in which s/he is immersed.*

Immersion in another culture is one positive dimension of globalization which makes young people open to realities outside of their country. In the Philippines, many people from developed countries conduct exposure or immersion programs guided by an educational institute or any non-governmental organization. A case in point was a three-day immersion program of ASI's partner educational school in social work in Japan – the Japan Lutheran College.¹⁷ The immersion program started with a city-tour where students rode in a unique vehicle, 'the jeepney' (a cultural transport vehicle of the Philippines that was a product of World War II and which in itself has become an institution). The students visited a museum for an understanding of Philippine history, observed a wedding in the Manila Catholic Cathedral, entered a suburb of the elite that is surrounded by high walls, took a walk in a plaza where the monument of a Japanese priest missionary is installed (a missionary exiled in the Philippines when the Edo Shogunate prohibited Christianity), watched a day care center of a poor community which exposed them to the socio-economic realities of urban informal settlers. A session in ASI oriented the 'exposurists' on ASI's vision and mission with a socio-cultural-situational analysis of the Philippines. This was followed by another round of visits to social welfare agencies concerned with alternative holistic health, children-in-crisis and organized youth of a poor resettlement community, and development action for women engaged that is concerned with rehabilitating Filipino-Japanese families (Filipina entertainers in Japan who got married to Japanese and

¹⁷ *The ASI Option* (a Tri-Annual Publication of the Asian Social Institute, vol. XXV, n. 2 May-August 2005) on Global Solidarity, pp. 2-3.

eventually abandoned by the latter – also a result of globalization of the work-force), The reflection sessions after the exposures were enlightening and enriching to both groups for an understanding of each other's cultures after an exchange of identified social issues in their respective countries and the responses in terms of programs in social work and social development. Some of the significant observations of the Japanese students during their exposure to Manila and 'rurban' areas are the following:

'There is a sharp contrast between the Makati (elite) dwellers and the poor Manila informal dwellers. The former has wide and paved roads and big houses while the latter has congested roads'.

'The drivers blow their horns all the time. In my readings about the Philippines, Filipinos are caring but why do they do this? In Japan, you blow your horn to warn in time of danger'.

'Before my visit to the Ayala Museum I thought that Japan suffered much from the World War II. After the visit I realized that other countries were also damaged by the WW II'.

'I was shocked to see a street child sleeping on the pavement in front of McDonald's Taft Avenue. I felt uneasy to witness a real street child'.

'Filipinos are religious. In the "barangay" (the smallest political unit) hall and in ASI, I saw pictures and statues of Jesus, Mary and saints. People are caring despite their financial difficulties'.

'I noticed that Filipino drivers talk while driving and look happy. The people walking on the street chat and touch each other'.

'The gap between the rich and the poor in the Philippines is very obvious. In Japan, the poor can still meet their basic needs'.

'I can now understand the difference between Filipinos and the Japanese. The exposure and sharing have widened my perspectives. I have grown in my way of looking at things'.

The above observations stimulate a questioning by both Filipino and Japanese students of their respective patterns of behaviour. They may discover how these cohere with their respective ways of looking at reality. Their shared values may be found out as originating from their respective religious and philosophical roots. They may see traces of their behavioural patterns in their own respective stories as a people where common as well as diverse experiences feature.

4) Fourth Postulate: *A socio-linguistic phenomenological approach to identifying values embedded in one's indigenous language among a specific vernacular group is a help to understand the hidden dimension of a shared world-view.*

My formal education with English as the medium of education (in mid-1940s and 50s) totally disregarded our indigenous languages. What was being communicated to us at that time is that one is not educated if one would not know how to speak and write English well. Thus those who have been schooled in either the university of the Philippines or in private schools run by Christians and religious congregations got a great dose of Western philosophy, humanities and the classics, logic and mathematics, classic literature, music and art as areas of specialization and English etiquette. When as a student I joined a young workers' movement in my parish, instead of learning to speak and write in Filipino, I held discussions with them on topics of an educational program (I have helped to write) – in English. This did well to our young workers but certainly not to me. Only when I studied sociology did I realize that I had to do something to redeem myself. I could not communicate to small fisherfolk. Thus, I started to set up a 'tent school' where I gathered ordinary folks and with them I facilitated a reflection on the local language. The women in primary health care, small fisherfolk, street youth, and some of our personnel in the rank and file started realizing how rich the local language is. The participants of the tent school and I discovered the richness and dynamism of our language categories. The participants of the tent school felt good about their language; as a consequence of which they felt proud of themselves and it made them learn English better. I felt that they were empowered; I, too, became empowered to write an article in Filipino which was published in a book on 'Innovative Development Processes in the Philippines: Case Studies' published in 1991 by the University of the Philippines.¹⁸ All case studies were written in English except mine. I felt liberated from being trapped by a language that could not be understood very well by the great majority of our people, most of them being monetarily poor. It was then that I discovered why the great majority are materially poor and that is: due to the reality that the monetary culture is not rooted in our indigenous culture. This is evident in the categories of our local languages. Our economy prior to colonial times was an unmediated economy – a barter economy; our communication was unmediated communication – a face-to-face communication. We have a term in Filipino we call 'mukhang-pera', pejorative expression, literally meaning 'face-like-money'. This expression could be addressed by

¹⁸ Serafin D. Talisayo (ed.), *Innovative Development Processes in the Philippines: Case Studies* (Diliman, Quezon City, Philippines, Asian Center, 1991).

debtors to their creditors/borrowers when the latter insist on debtors paying their loans. Personalistic relations are a hindrance to do business. In a monetized economy, time is a cost but in the Philippines, among the vernacular groups, the local languages tell time in Spanish. It seems we never had a concept of time in minutes and seconds, the reason why we are relaxed and seldom feel stressed. According to surveys Filipinos are the happiest people and the most religious in Asia. When indigenous and local groups communicate, they would make use of metaphors from nature; while English as a language uses categories derived from industrial and military contexts.

The phenomenological approach in human and social sciences is taught to ASI's students coming from different Asian countries as well as from different sub-cultures of the Philippines. One exercise which we do is to look into some dynamic equivalents in the different languages of Asian values – life, well-being, interiority, compassion, harmony, balance, peace and prosperity. We find out whether cultures are matriarchal and patriarchal – whether categories in language are sexist or non-sexist and how these are reflected in institutional dynamics, system of expectations between men and women in the family, community and society. To what extent does a particular language describe the interiority of a person – and how this is externalized in their prayer forms and in the workings of institutions.

5) Fifth Postulate: Most major religions come from the East and I dare say including Christianity (which comes from Greater Asia). Emerging spiritualities now are tapping into the richness of the oriental wisdom from the East, a source of religious-cultural expressions of relating to the Ultimate Reality.

There is an interest among an interdisciplinary group of Western scientists into what they call the perennial wisdom of ancient philosophers and gurus in Asia. In our institute, prior to taking up Christian Social Teachings, we bring a sense of the philosophy of part and whole by teaching the people that the way one breathes is the path to life, health and being. We teach students how to contemplate by being conscious of one's breath.

We know for a fact that Indian priests are forming Christian ashrams; Catholic spiritual writers teach how to meditate in the Christian way. Bio-spiritual exercises – Yoga, Tai-Chi and Aikido – are inculturated into the prayers that lead to praising God for the elements of life – air, water, soil and fire – and for the abundance in nature and the whole creation.

6) Sixth Postulate: *In the context of globalization with its materialistic, mechanical and consumerist world-view, it is cultural awareness of monetarily poor people that will empower them to have a handle to re-shape economic globalization through their own assertion nationally and internationally of what constitutes for them real wealth.*

Colonialism from external and local powers and economic globalization are bringing 'the globally excluded' to a concept of community-based economics.¹⁹ In specific bio-regions or eco-systems community-based natural resource management towards a sustainable future, supported by their respective cultures, can be planned by related sectors in the community – indigenous groups and upland farmers, fisherfolk, those in commercial agriculture, students and professionals, and other stakeholders. People's sense of well-being will not depend on how much income they have but on the effective management of their natural environment. They will be oriented to zero-waste management, compost-making and recycling. These undertakings will lead them to be aware of their richness especially when they can have sufficient food on the table, perhaps some regular income from their surplus which they sell in the local market. They will have enriched their physical, natural, human and social capital. They will develop in the vision of a cosmology that will see themselves in solidarity with their neighbors and in harmony with life's natural elements. They will put their trust in the power of God within and among them.

¹⁹ Dr. Sixto Roxas, a Filipino economist, once the economic adviser of the senior President Diosdado Macapagal in the early nineteen sixties, shifts his development paradigm from enterprise based to community based integral economics. He has now developed a concept specifically for the Philippines of building an integral economic paradigm that focuses not on business enterprise but on community, constituted by stakeholders and sectors spanning a bio-cultural region. It assumes that development in different parts of a country may have to have different starting points since various bio-regional communities are in different socio-political strata (tribal communities, commercialized agrarian communities, capitalistic urban communities and export-import enclaves) and psycho-cultural levels of complexity. His integral development paradigm should respect the innate diversity of land and people and culture, must be inclusive, founded on dialogue with constituency, positions the country for globalization without sacrificing the national interest, integrated rather than ad hoc implementation of projects and programs; sustainability builds on the wealth of the nation. (Unpublished paper presented in a Forum, September 16-17, 2005 on Managing Bio-Regions for Sustainable Development and followed by another activity on 'Environmental and Cultural Response to Nation-building', sponsored by Asian Social Institute (ASI).

In a time of globalization, it is important for national leaders in developing countries to note that different bio-regions determine to some extent their respective cultures, i.e. the shared patterns of behavior of people and thus there cannot be a single national plan for all bio-regional groups that should be imposed on people. It is important that people in specific bio-regions become culturally aware of their wisdom in bringing about the social arrangements²⁰ they have had before the incursions of outsiders – how their eco-system has affected the food chain – the people of the uplands, the farmers, the fisherfolk, and the urban dwellers, the bio-region being the source of customary law, the right to the use of land and coastal resources, etc. In accompanying core leaders of a bio-region, it is important to facilitate awareness among people of the interconnectedness of all aspects of life as well as all stakeholders in the community. In this context, they heighten the consciousness of their own ways of resolving conflicts. Hopefully through this working concept, a cultural and/or ethnic community may be able to assert their rights, understand their obligations and live in harmony with others and their environment or eco-system.

The educational institutions who are educated in the dominant culture especially the young and the young adults can act as a bridge between those 'who need to have less in order to be more' (Barbara Ward) and the communities of people 'who need to have more in order to be more' (Pope Paul VI in his *Populorum Progressio*). There should be a continual educational process of self-empowerment by nurturing people's inner gifts and their culture in function of community-building and community enterprises.

Transformed lifestyles as practiced albeit by a small minority in the Philippines, Thailand and India, are demonstrated by alternative education, alternative holistic health systems, micro-finance, group media, para-legal services, community enterprise building and entrepreneurship, coop-

²⁰ Dr. Kennette Ruddle is Professor in the School of Policy Studies at Kwansei Gakuin University, Japan (previously having held posts at the University of California and the East West Center, USA and at the National Museum of Ethnology and Graduate University of Advanced Research in Japan). He spoke together with Dr. Sixto Roxas on 'Coastal Resource Management in Complex Environments' in a forum sponsored jointly by the Asian Social Institute (ASI) and Maximo T. Kalaw Foundation for Sustainable Development in Manila. To a multi-sectoral audience from different parts of the Philippines, he gave an exposition of how Japan had drawn their system and policies of managing coastal resources from the traditional cultural wisdom of consensus building among fisherfolk in protecting the environment, the giving of fishing rights as well as in resolving conflicts.

eratives, appropriate technology, alternative medicine, organic farming, community fish sanctuaries, and reforestation. There are thousands of initiatives of NGO groups, people's organizations and basic Christian communities in the Philippines; yet they are searching for a national leader with a vision to support the people in an organic, holistic and spiritual worldview as against the mechanical, fragmented and materialistic worldview.

A sign of hope in the Philippines is that some, although still a small minority, among business, educational, local government, and church groups are beginning to see the importance of appreciating their cultural roots and developing indigenous elements of their culture with a modern and post-modern consciousness. Alternative lifestyles are supported by their music, their drama groups, their myths, rituals, their dance, song and healing arts.

7) Seventh Postulate: *An interdisciplinary program of studies will help in socio-cultural frameworks of analysis to understand reality, since culture is all pervasive and penetrates all institutional spheres.*

The following are the courses of study²¹ on the graduate level that may help in bringing out a reflection on culture. Philosophy as Worldview; Asian

²¹ On the emerging worldview from which a 21st century shift in paradigm manifests itself, the following selected interdisciplinary reading materials (which is definitely not exhaustive) demonstrate a convergence:

- Wilber, Ken, *The Eye of the Spirit. An Integral Vision for a World Gone Slightly Mad* (Boston and London: Shambala Publication, 1998).
- Frank X. Tuoti, S.J., *The Dawn of the Mystical Age. An Invitation to Enlightenment* (New York: The Crossword Publishing Co., 1997).
- Capra, Fritjof, *The Turning Point. Science, Society, and the Rising Culture. A Completing Vision of a New Reality. A Reconciliation of Science and the Human Spirit for a Future that Will Work* (Toronto, New York, London, Sydney, Auchland: Bantam Books, 1983).
- Prabhu, Joseph (ed.), *The Intercultural Challenge of Raimon Pannikar* (Maryknoll, New York: Orbis Books, 1996).
- Luzbetak, Louis J., *The Church and Cultures. New Perspectives in Missiological Anthropology* (New York: Orbis Books, 1989).
- Castells, Manuel, *The Rise of the Network Society. The Information Age: Economy, Society and Culture*, vol. I, new edition (Blackwell Publishing, 2000).
- Marshall, Peter, *Riding the Wind. A New Philosophy for a New Era* (London and New York: Continuum, 2000).
- Griffiths. Bede, *A New Vision of Reality. Western Science, Eastern Mysticism and Christian Faith* (London: Fount Paperbacks, 1992).

Religions and spiritualities, sociological frameworks of analysis (structural-functional, conflict, symbolic interaction, exchange, dramaturgical), in the realm of psychology, Howard Gardner's multiple intelligences, and Jungian psychology that brings out the significance of the collective unconscious and the role of archetypes, myths, rituals and symbols in peoples' drives, Eco-systems and Culture, The Arts and Sciences., monetized (mediated) and non-monetized Economy (unmediated); Communication (info-technology, mass media, group-media).

- Rabindranath, Tagore, *Selected Essays* (India: Rupa & Co., 2004).
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- Wostyn, Lode, *A New Church for a New Age* (Maryhill School of Theology, Quezon City, Philippines: Claretian Publications, 1997).
- Gardner, Howard, *Intelligence Reframed. Multiple Intelligences for the 21st Century* (New York: Basic Books, 1999).
- Goleman, Daniel, *Emotional Intelligence* (New York, Toronto, London, Sidney, Auckland: Bantam Books, 1995).
- Wolman, Richard N., Ph.D., *Thinking with your Soul. Spiritual Intelligence and Why it Matters* (New York: Harmony Books, 2001).
- Braud, William and Rosemarie Anderson, *Transpersonal Research Methods for the Social Science. Honoring Human Experience* (Thousand Oaks, London, New Delhi: Sage Publications, 1998).
- Walsh, Roger and, M.D. & Frances Vaughan, Ph.D., *Paths Beyond Ego. The Transpersonal Vision* (New York: J.P. Putman Sons, 1993).
- *The Challenges of Science: Education for the 21st Century* (Vatican City: The Pontifical Academy of Sciences, 2002).
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The foregoing books critique the worldview that has brought about a dominant culture and embodied in major institutions that is governed by a mechanical, materialistic and consumerist culture. This critique of an interdisciplinary group of scientists of Western dominant culture views a future characterized by an organic, spiritual and sustainable worldview. The latter worldview will respect three principles of sustainability: respect for the self-organizing creative principle in each element of creation, respect for differentiation (in persons, in the biological sphere, and in culture); and will harness all differentiated realities

A holistic education takes into consideration not just the objective reality (outer reality) but also the subjective reality (inner reality). Thus Ken Wilber²² speaks of four quadrants of the human person to be addressed. These are the interior-individual (psycho-spiritual dimension), the exterior-individual (the external behavior); the interior-collective (the world view and hidden dimension of culture – myths, the rituals, the prayer forms); the exterior-collective – the externalization of the worldview as manifested in the institutional dynamics and biological and cultural systems.

The path of growth of every person and community follows the law of spiral dynamics where the next stage integrates the past stages.

D. CULTURAL FEASTS ARE A WAY TO GLOBAL PEACE, JUSTICE AND INTEGRITY OF CREATION

It is itself an education to make people feel their dignity and the dignity of other peoples when we do honor to cultural diversity through cultural feasts or festivals. The participants of such cultural festivals celebrate the strengths of their respective cultures. They exhibit and highlight their stories as a nation or of their respective ethnic groups. They demonstrate their culinary arts, taste their diverse food dishes. They become aware of the connectedness of their respective cultures with their environment through their languages, dance, song, painting, sculpture, architecture, myths, rituals and prayer forms. When people come together to celebrate their culture, they celebrate their 'beingness' they appreciate the expressions of their human and divine dignity – their Godliness. They do not see themselves as mere appendages or functionaries of an economic and political machine; they find themselves sharing a common humanity. In cultural feasting, the boundaries of culture disappear as they begin loving themselves because they become conscious of and take pride in their

towards harmony, balance, communion and solidarity. Education for the 21st century is a challenge to maintain the three principles of sustainability – a holistic cultural approach to a higher and expansive consciousness of reality, capable of revolutionizing our fragmented disciplines in the serviceness of wholeness of life and all life-forms.

Also much of the content of the books draw wisdom from ancient philosophical and spiritual wisdom of Eastern religions – the dynamic dimension of cultures in Asia.

²² Wilber, Ken, *A Theory of Everything. An Integral Vision for Business, Politics, Science and Spirituality* (Boston: Shambala, 2000).

cultural roots and identity. In the same vein they begin loving and appreciating other people's cultural strengths.

On the global level, when people themselves do not stand in awe of other's uniqueness, official diplomatic relations fail. Many times, peace-makers die a violent death because people who hate others will kill a peace-maker. Example is what has happened with the peace-talks between Palestine and Israel. The opposite is true with the peace process between India and Pakistan. This peace process is being sustained by cultural festivals as well as by allowing people to make use of each other's medical facilities.

For the people who have had experience with colonization, it may be wise to take this side of their history as given so as not to become victims of it. They are aware that a divide is segmenting their society between those who study in English and understand English categories while the great majority has not yet felt at home in this language. We who have had this kind of a history will have to have a two-fold educational objective; first that we take pride in our cultural roots and secondly that we open up to the strengths of the dominant culture. By extracting the beautiful values of our own indigenous culture albeit operating in families and small communities, these values could be appropriated in a wider context – the context of the nation and now in a time of globalization in the context of the world. The indigenous groups should strive to integrate the strengths of their culture in relation to life-enhancement with the strengths of the dominant culture they have imbibed.

Through fostering cultural awareness and appreciation of one's and others' cultures in relation to life-values of communion and solidarity despite diversity, we could infuse soul into aspects of globalization such as info-technology exploring the possibilities for it to promote life without exclusion and marginalization.

THE CHALLENGE OF INTERNATIONAL EDUCATIONAL GAPS IN THE CONTEXT OF GLOBALIZATIONS

JUAN J. LLACH

The critical importance of human capital to accelerate economic growth and to build more equitable societies has been increasingly recognized in economic and social literature.¹ Much less attention has been paid, however, to a question on whose answer crucially depend the probabilities of realizing the promises about the economic and social role of education.² Are educational levels of developed and developing countries converging or diverging? This omission is still more surprising when compared to the copious literature devoted to the economic convergence or divergence among countries.³

This paper is only a preliminary contribution to the analysis of international educational convergence. The basic approach is to compare what happened in the two more intense contemporary globalization waves, those of 1870-1930 and 1970-2003. The comparison is shown in the first two sections of the paper. The third one is devoted to suggest some hypotheses to explain the remarkable contrasts between the two waves, as well as some educational policy implications for developing countries.

1. THE FIRST CONTEMPORARY GLOBALIZATION WAVE: 1870-1930

The analysis of educational convergence trends between 1870 and 1930 meets important data limitations. The only indicators at hand are those of

¹ Some recent revisions or discussions are Parente and Prescott (2000), Krueger and Lindahl (2001), Barro and Sala i Martin (2003), Pritchett (2004) and Manuelli and Seshadri (2005).

² The most salient exception is Zhang and Li (2002). See also Bloom (2004).

³ A synthesis of the literature an empirics of economic convergence can be found in Llach (2002 and 2003).

proportional primary and secondary enrollment, and the sample is limited to 29 and 24 countries, respectively. Of them, 21 in the case of primary education and 19 in secondary education are European or of its Western Offshoots in North America and Oceania (WO: Australia, Canada, New Zealand and United States). In spite of these limitations, it is possible to obtain some interesting conclusions. Tables 1 and 2 show a synthesis of the results and the complete details can be seen in Tables A1 and A2 of the Appendix.

Primary Education

A clear international convergence took place in primary education in this period, not only of all regions compared to the Western Offshoots, but also of Africa, Latin America and Asia compared to Europe. A bit surprisingly, the only exceptions to the convergence to the WO average were France, Germany and Switzerland. Additionally, growth of enrollment in New Zealand and the United States was slower than in Australia and Canada. A drop of both, the standard deviation (s convergence) and the variation coefficient was observed.

TABLE 1. Educational Convergence, 1870-1930 (1). Students Enrolled in Primary Schools, per 1000 Children Ages 5-14. Regions' Values Compared to Western Offshoots'.

	1870-1880	1930	Δ 1870-80/1930
Africa	(801) / .01	(757) / .19	(44) / (.18)
Northern Latin America	(635) / .21	(600) / .36	(35) / (.15)
Southern Latin America	(681) / .16	(350) / .63	(331) / (.47)
Asia	(696) / .14	(574) / .39	(122) / (.25)
Northern Europe	(135) / .83	(195) / .79	60 / .04
Scandinavia	(377) / .53	(247) / .74	(130) / (.21)
Central-East Europe	(424) / .48	(294) / .69	(130) / (.21)
Southern Europe	(540) / .33	(378) / .60	(162) / (.27)
Statistics	x :421.4 s: 279.9 vc:.664	x: 626.0 s: 226.4 vc: .362	

Notes and sources. The table's cells show, first, the absolute difference between the regional values and those of the Western Offshoots and, after the symbol "/" the same difference in quotients. Bold fonts indicate convergence. The statistics are the mean (x), the standard deviation (s) and the variation coefficient (vc). Elaborated on Table A1 and Lindert (2004).

Secondary Education

The picture is very different when secondary education is concerned. Here, all the regions diverged from WO,⁴ being Southern Latin America the most successful case and Brazil and Chile the only two countries that converged. If the comparison is made with Northern Europe, the picture differs. As much as 16 out of 24 countries converged to the NE average, including Argentina, Chile, Denmark, Finland, Sweden, Austria, Hungary, Italy, Portugal, all the Western Offshoots, Brazil and Mexico (these two from almost nil levels).

While a typical catch-up process took place regarding primary education, with the laggard countries clearly approaching the level of the more advanced ones, the contrary happened with secondary education.⁵ In both

TABLE 2. Educational Convergence, 1870-1930 (2). Students Enrolled in Secondary Schools, per 1000 Children Ages 5-14. Regions' Values Compared to Western Offshoots'.

	1870-1880	1930	Δ 1870-80/1930
Northern Latin America	(8) / .20	(86) / .08	78 / (.12)
Southern Latin America	(6) / .40	(57) / .39	51 / (.01)
Northern Europe	16 / 2.6	(30) / .68	46 / (1.92)
Scandinavia	11 / 2.1	(33) / .65	44 / (1.45)
Central-East Europe	1 / 1.1	(52) / .44	53 / (.66)
Southern Europe	(5) / .50	(21) / .17	16 / (.33)
Statistics	x: 13.8 s: 15.2 vc: 1.105	x: 50.4 s: 43.9 vc: .871	

Notes and sources. The table's cells show, first, the absolute difference between the regional values and those of the Western Offshoots and, after the symbol '/' the same difference in quotients. The statistics are the mean (x), the standard deviation (s) and the variation coefficient (vc). Elaborated on Table A2 and Lindert (2004).

⁴ It is worth mentioning that the performance of the members of the group of Western Offshoots was very different, with New Zealand and USA growing very rapidly and reaching the highest secondary enrollment ratios in 1930, and Australia and Canada growing slower and remaining below European rates in the same year.

⁵ The Spearman coefficient (ρ) between the initial level of enrollment and its growth is $-.625$ for primary education (positive catch-up) and $.422$ for secondary education (divergence).

educational levels, the association between the growth of enrollment and that of GDP was very weak,⁶ showing the complexity of the relationships between both processes. If we take into account that GDP convergence was also very weak between 1870 and 1930 (Llach, 2002 and 2003), the lack of convergence in secondary education, whose skills are more demanding, should not be surprising.

2. THE ONGOING GLOBALIZATION WAVE: 1970-2003

This section divided into two parts. The first one deals with international convergence in expected educational flows, as measured by school expectancy. The second one studies convergence in educational or human capital stocks, as measured by educational attainment of people older than 14 and 24.

2.1. *Educational Flows Divergence*

Data to analyze educational convergence in this period is (logically) more relevant and abundant. First, a better indicator is at hand, i.e., the school expectancy at 6 years old, including the primary, secondary and tertiary levels. Of course, this indicator depends on current enrollment rates and assumes they will be constant all along the life span of the cohort under consideration, normally that aged 5 or 6 years. Secondly, the sample is larger, comprising 38 countries of which 21 are both developing and not European. Table 3 shows a synthesis of the results, while full details can be seen in Tables A3 and A4 of the Appendix.

Contrary to what happened in the first contemporary globalization wave, the second one has witnessed signals of divergence. At the regional level, only the Middle East and Southern Europe have been converging to the level of Northern Europe. At the country level, Argentina, Brazil, Egypt, Hungary, Libya and Saudi Arabia are the only developing countries – 6 out of 21 – that have been converging to the developed countries school expectancy, and all of them but Egypt also converged to Northern Europe. Considering the developed countries, Australia, New Zealand, Ireland, Korea, Netherlands, Norway, Portugal, Spain and the United Kingdom have been converging to the average of developed countries, and all of them

⁶ The Spearman coefficients are .197 for primary and .155 for secondary education.

but Netherlands, also to Northern Europe. All these facts have been accompanied by an increase in s divergence. These results coincide with those obtained by Zhang and Li (2002) for the period 1960-1990, in which they found an increase in the educational attainment gap between developing and developed countries, in spite of a decrease in dispersion.

Unlike what happened with primary education between 1870 and 1930, there has not been a catch-up process in this case. The association between increase in school expectancy and GDP growth has also been very weak.⁷

TABLE 3. Educational Convergence, 1970-2003. School Expectancy, Primary to Tertiary Education. Regions' Values Compared to Northern Europe and to / the Average of Developed Countries.

	1970	2002-3	Δ 1970/2002-3
<i>Developing countries</i>			
Sub-Saharan Africa	(7.4) / (7.3)	(10.1) / (9.2)	2.7 / 1.9
Northern Latin America	(3.6) / (3.5)	(5.4) / (4.5)	1.8 / 1.0
Southern Latin America	(1.2) / (1.1)	(2.2) / (1.3)	1.0 / 0.2
Middle East	(4.7) / (4.6)	(4.5) / (3.6)	(0.2) / (1.0)
Asia	(5.7) / (5.6)	(8.7) / (7.8)	3.0 / 2.2
<i>Developed countries</i>			
Asia	(1.2) / (1.1)	(2.6) / (1.7)	1.4 / 0.6
New Countries	2.3 / 2.4	0.5 / 1.4	1.8 / 1.0
Southern Europe	(1.7) / (1.6)	(1.0) / (0.1)	(0.7) / (1.5)
Eastern Europe	(1.3) / (1.2)	(3.1) / (2.2)	1.8 / 1.0
Northern Europe	--- / 0.1	--- / (0.1)	--- / 0.2
Statistics	x:9.03 s:3.17 vc:.351	x:13.52 s:3.87 vc:.286	

Notes and sources. The table's cells show, first, the absolute difference between the regional values and those of Northern Europe and, after the symbol '/' the same difference but compared to the average of developed countries. Bold fonts indicate convergence. The statistics are the mean (x), the standard deviation (s) and the variation coefficient (vc). Elaborated on Tables A3 y A4 and UNESCO (2005a).

⁷ The ρ between school expectancy initial level and its growth is almost nil $-.002-$, showing no catch-up and the ρ correlation between school expectancy and GDP growth rates is only .148.

Moreover, when the lists of educational-converging and GDP-converging countries are compared to each other the results are not clear. There are only 11 countries with complete data, of which 5 converged in both dimensions, other 4 converged in education but not in GDP and 2 converged in GDP but not in education.⁸ Additionally, in the group of 12 GDP-converging countries without enough educational data, the average school expectancy was only 11.9 years in 2003. Since in Northern Europe that variable increased by 6 years between 1970 and 2003 it is very probable that at least some of those GDP-converging countries did not converge in education because, otherwise, they should have had non-realistic low school expectancies in 1970.

2.2. *Educational Stocks Convergence*

The analysis of this section is based on Barro and Lee (2000). They estimated the stock of human capital of a vast sample of countries and regions, as measured by levels of educational attainment in terms of average years of education (Table 4). Contrary to the case of school expectancy, this indicator does not depend on current but on past enrollment rates. As it can be seen, most of the regions' stocks of human capital were converging to that of developed countries, being Sub-Saharan Africa the main exception. Transition countries also diverged, but their stock of human capital was basically the same as that of developed countries. A similar trend of convergence in average years of schooling has been found by Araujo, Ferreira, and Schady (2004).⁹

There is no contradiction in the opposite trends of both indicators. Two are the main factors that explain the convergence in human capital stocks. First, the magnitude of the increase in primary and, to a lesser extent, secondary enrollment rates in developing countries and, second, a purely demographic factor, i.e., the gradual death of older cohorts with very low levels of literacy, if any. Those enrollment jumps in developing countries have not had a convergence impact on school expectancies because they have

⁸ Egypt, Hungary, Ireland, Korea and Portugal converged in both dimensions. Argentina, Brazil, Libya and Saudi Arabia converged in education, but not in GDP, and the contrary happened to Hong Kong and India. School expectancy increased 6.26 years in the first group (from 9.9 to 15.16), 6.88 years in the second (7.4 to 14.28) and only 3.75 in the third one (7.95 to 11.7).

⁹ See World Bank (2005).

been overcome by even bigger jumps in secondary and tertiary enrollments in developed countries. For instance, between 1970 and 1997, gross secondary enrollment jumped from 75.7% to 100.1% in developed countries and from 22.7% to 51.7% in developing countries, while gross tertiary enrollment jumped, respectively, from 26.1% to 51.6% and from 2.9% to 10.3%.

TABLE 4. Regions' Educational Convergence to the Developed Countries. Level as Measured by Educational Attainment, 1960-2000.

	1960-2000		1970-2000		1980-2000		1990-2000	
	15 +	25 +	15 +	25 +	15 +	25 +	15 +	25 +
All Developing	+	+	+	+	+	+	+	+
M. East, N. Africa	+	+	+	+	+	+	+	+
S-Saharan Africa	-	-	-	-	+	+	-	+
Latin Am. and C.	+	-	+	-	+	+	+	+
East Asia, Pacif.	+	+	+	+	+	+	+	+
South Asia	+	+	+	+	+	+	+	+
Transition couns.	-	=	-	-	-	+	-	-

Notes and sources. The table's cells show convergence (+) or divergence (-) of the average number of years of education of the population aged 15 or 25 and more, comparing the values of the different regions to those of the developed countries. Elaborated on Barro and Lee (2000).

2.3. Latest Trends

More optimistic signals arise if, instead of considering the period 1970-2002/3, the time span is limited to the last decade (Table 5). While between 1990 and 2001 Latin America and the Caribbean were the only developing region whose school expectancy grew faster than North America and Western Europe, since 1998 all developing regions converged to the developed ones. Of course, the period is still too short to consider that a new trend of educational convergence is emerging. The continuity of the convergence in school expectancies is critical. Otherwise, as the demographic 'advantage' of developing countries will tend to vanish, convergence in human capital stocks will also be compromised. This will not happen only if developing countries get a very rapid growth of enrollment rates.

TABLE 5. Recent Trends in School Expectancy at 6 Years.

	School life expectancy, in years						
	2001			Change since 1990			Change since 1998
	Primary/ secondary	Post- secondary	All levels	Primary/ secondary	Post- secondary	All levels	All levels
Sub-Saharan Africa	6.8	0.2	7.1	+0.9	+0.1	+1.0	+0.3
Arab States	9.0	1.0	10.0	+1.0	+0.4	+1.4	+0.2
Central Asia	10.1	1.3	11.4	+0.0	-0.1	-0.2	+0.3
East Asia/Pacific	10.0	1.0	10.9	+0.7	+0.6	+1.3	+0.4
South/West Asia	8.0	0.6	8.6	+0.5	+0.5	+1.0	+0.2
Latin America/Caribbean	11.6	1.4	13.0	+2.1	+0.5	+2.6	+0.9
N. America/W. Europe	12.8	3.5	16.3	+0.7	+0.8	+1.5	+0.1
Central/Eastern Europe	10.2	2.5	12.7	+0.5	+0.8	+1.3	+0.9
World	9.2	1.1	10.3	+0.6	+0.4	+1.0	+0.3

Source: UNESCO (2005b).

GENDER, SOCIAL AND RURAL-URBAN GAPS

Gender Gaps

Another, very relevant educational outcome of the ongoing wave of globalization has been the change in gender gaps. With the sole exception of Sub-Saharan Africa, in all the other regions women's school expectancies have grown so faster (Table 6) that they surpass now those of men. In only 2 of the 14 developing countries with data (Burkina Faso and Lesotho) the school expectancies of men have grown faster, and in 10 out of 17 women's school expectancies are now higher than those of men. In the case of developed countries, only 2 out of 12 have had faster growth of men's school expectancies (Japan and Korea) and 12 out of 15 have now women with school expectancies higher than those of men (Hong Kong, Japan and Korea are the exceptions). It seems evident that the issue of gender gaps has now two very different faces, with women exceeding men in most of Africa and Asia and with men exceeding women in most of America and almost all Europe and Oceania.

Rural-Urban and Other Social Gaps

In spite of recent progresses in some countries, rural-urban educational gaps are still very wide (Figure 1). At the same time, in many regions of Asia, Africa and Latin America, these gaps tend to compound with gender gaps, resulting in situations like Pakistan's (Figure 2), with primary school completion rates of 64% for urban males and 17% for rural women. According to the World Bank (2005) these two gaps, gender and rural-urban, are lower for the younger generations what is a signal of convergence.

TABLE 6. Evolution of gender gaps. Men – women differences in school expectancies at 6 years old.

	1970	2002-3
<i>Developing Countries</i>		
Sub-Saharan Africa	0.4	0.8
Southern Latin America	(0.2)	(2.0)
Northern Latin America	0.5	(0.4)
Middle East	4.9	(0.8)
Asia	3.3	1.4
<i>Developed Countries</i>		
Western Offshoots	0.1	(1.3)
Asia	0.8	0.7
Northern Europe	1.0	(1.5)
Southern Europe	0.7	(1.3)
Eastern Europe	(0.1)	(0.7)

Notes and sources. Southern Latin America: only Argentina. Asia, developing countries: only India. Elaborated on Tables A3 y A4 and UNESCO (2005).

SOME PROJECTIONS

Regarding the future, Figures 3 and 4 let us know that if current trends do not change, the accomplishment of Millennium Goals for the year 2015 referring to universal access to primary education will fall very short, with 46.7 million children out primary school. Almost 75% of them will be living in Sub-Saharan Africa and in East Asia and the Pacific. Even worse, as can be seen in Figure 4, in the middle of this century there will be 39.0 million children not in primary school.

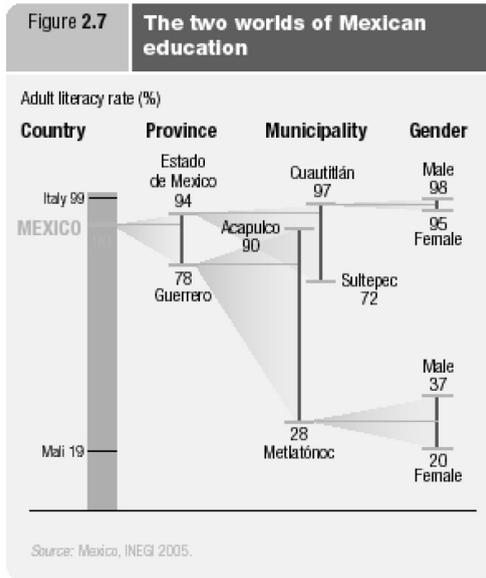


Figure 1. Educational Inequalities inside Mexico. *Source: UNDP (2005).*

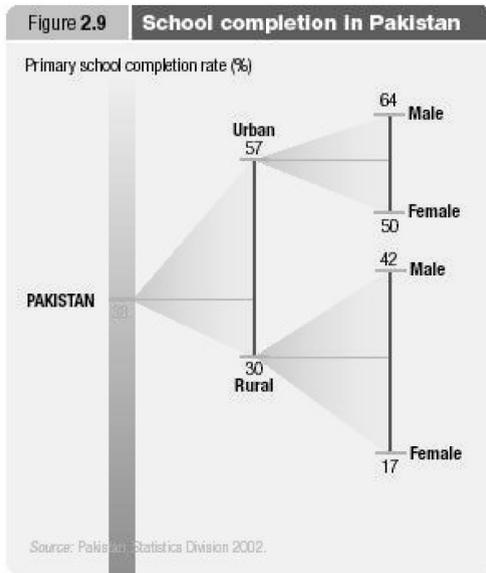


Figure 2. Educational Inequalities inside Pakistan. *Source: UNDP (2005).*

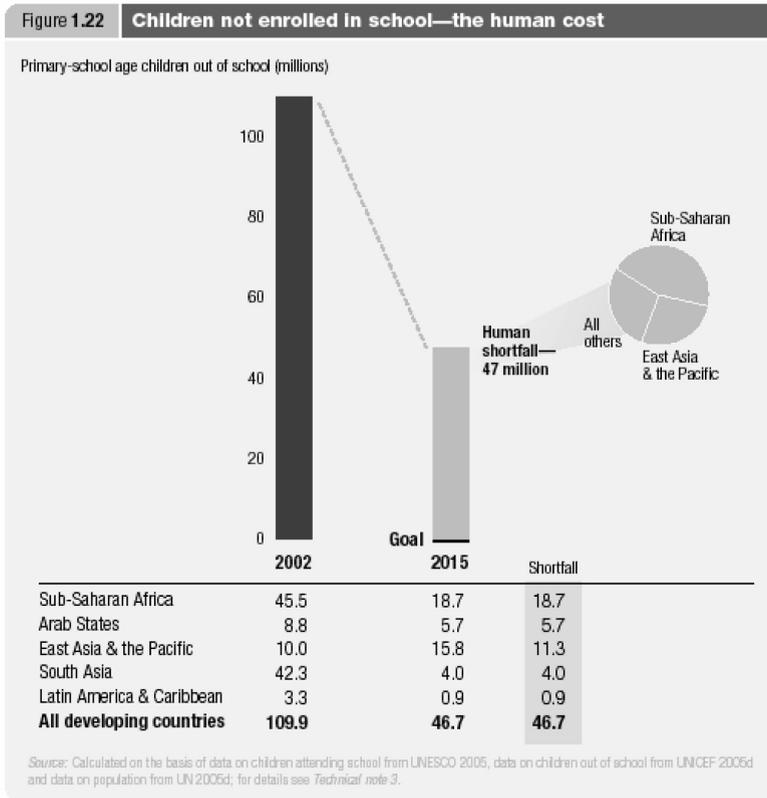


Figure 3. Primary School Enrollment and the Millennium Goals. Source: UNDP (2005).

3. HYPOTHESES AND EDUCATIONAL POLICY IMPLICATIONS

The educational challenges we are confronted with in the context of the current wave of globalization look overwhelming. It is true that educational divergence partly has, perhaps, an embodied solution. Even when the expansion of post-tertiary education will probably continue, it is more difficult to conceive equivalent extensions of the educational life in the future. If such is the case, educational convergence has better years to come. However, developing countries confront now a more difficult stage to extend school expectancy, i.e., secondary education (Bloom, 2004).

If no satisfactory solution is found to educational divergence, the globalization wave we are living will probably be not only unfair, but with even more disruptive events. Only if accompanied by plain access of exports of developing countries to developed markets, universal access to education is the most important factor to build more equitable national and world societies in the new century. What are the possible explanations of the lack of educational convergence between developing and developed countries? This is the critical question we must answer to find the ways out.

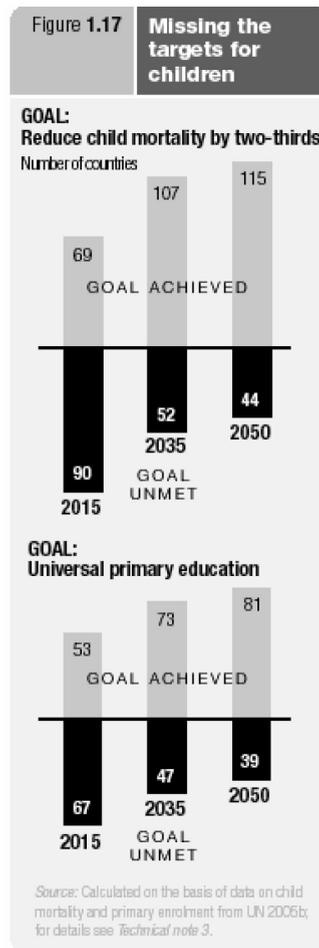


Figure 4. Primary Enrollment Projections Through 2050. Source: UNDP (2005).

Contrary to what happens in the case of economic growth, it seems that in the case of educational divergence a more important part of the responsibilities lie in the developing countries themselves, as well as in some advice of multilateral organizations. There is a remarkable double speech of developing countries' leaders regarding education, all of them coinciding in its crucial importance to get an equitable development, but not many behaving accordingly. Of course, as in everything human, right explanations involve both parties. The lack of educational convergence cannot be analyzed independently of the lack of convergence in economic growth and it is very clear that both developed and developing countries are involved in the explanation of the last one (Llach, 2002 and 2003). Additionally, the sustained brain drain process that has been taking place at an increased pace, at least since the sixties of the last century, is essentially a relational phenomenon.

Even when these kinds of explanations of educational divergence can help to find solutions, the fact is that at the time of giving advice to politicians in developing countries, neither the academy, nor the experts in educational policies agree about which of them are right. We have at least three different kinds of advice.

Advice Type 1: More Resources, More Education

In this approach, the core recommendation is to guarantee universal access to the three levels of basic education (pre-primary, primary and secondary), with more emphasis on the primary level. Since all of them imply more resources, a strong emphasis is given to increasing (mostly public) investment in education. This approach is very widespread among people directly involved in the everyday education life, particularly teachers and their unions, as well as among educational policy makers.

Advice Type 2: Better Education and Not More Resources

This piece of advice is based on three premises. More education does not imply better education; it is quality and not quantity of education that is the most crucial to life opportunities and earnings and, in the third place, more resources are not associated with better education. Built on them, the central recommendations in this case are to reform the educational systems in order to give them more accountability and, particularly, right economic incentives to teachers, such as those based on their students' perform-

ance. This approach is mostly proposed by educational economists and , from time to time, by the staff of multilateral institutions too.¹⁰

Advice Type 3: More Education, Better Education and More Resources

As usual, there are also ‘third way’ proposals that suggest that both pieces of advice are partly right and that more education, better education and more resources, the three of them are needed together. This is the advice that the author favors.

Let us first disentangle the discussion about resources. Even when expenditure is not the only key¹¹ it is anyway very clear that the higher the level of development, the higher the ratio of educational investment to GDP (Table 7.1). Part of the explanation of this association is that the density of educational investment increases with the level of education, as can be seen in Table 7.2.

TABLE 7.1. Expenditure matters (1). Public investment in education as % of GDP.

Regions	Public Investment / GDP
Developed Regions (n=16)	5.30
Europe (n=14)	5.35
Oceania (n=2)	4.95
Emerging Asia (n=4)	5.00
Developing Regions (n=49)	4.02
Africa (n=18)	4.21
Asia (n=17)	3.59
Latin America (n=14)	4.34

Notes and sources. Elaborated on UNESCO (2005). Regions include all countries with data.

¹⁰ One of the best advocates of this approach is Eric Hanushek (see, for instance, 2005). One example of the thinking of multilaterals is the following: ‘... the large variation in the effectiveness of using funds makes it hard to find a consistent relationship between changes in spending and outcomes – highlighting the importance of spending money well ... For each country there is a story about why public spending contributed to improving outcomes or why it did not. That is the crux: the effectiveness of public spending varies tremendously’ (World Bank, 2004). Similar ‘expenditure-skeptical’ expressions can be found in World Bank (2005).

¹¹ As rightly point the World Bank (2004) ‘The positive association between expenditures and outcomes is driven by the fact that public expenditure increases with national income and, after controlling it, public expenditures and outcomes are only weakly associated’.

TABLE 7.2. Expenditure matters (2). Annual expenditure on educational institutions per student relative to GDP per capita (2002). By level of education, based on full-time equivalents.

	Pre-primary	Primary	Secondary	Tertiary
OECD average	18,0	20,0	26,0	43,0
Latin America	14,6	13,3	15,7	58,1
Asia	4,4	14,2	19,8	83,5

Notes and sources. Elaborated on OECD (2005). Regions include all countries with data. OECD: all countries. Latin America: n=7. Asia: n=4.

The indicator shown in Table 7.2, i.e., expenditure per student as a proportion of GDP per capita, is more refined at the time of assessing the educational investment and effort of regions and countries, as can be more clearly appreciated in Table 7.3. The higher the level of education, the higher the value of the indicator, being Eastern Europe the region that shows more even efforts applied to all levels of education. In the case of primary education all developing regions show lower values than the world average, while the opposite happens with developed regions. Roughly the same happens in secondary education, with the interesting exception of Africa that has the highest investment per student as a proportion of its GDP per capita.¹² This exception is a bit more general when tertiary education is concerned. Again, Africa shows the highest level of investment, but also Asia and Latin America have higher values than Oceania or Eastern Europe.

To go deeper into the analysis of these 'exceptions' it is useful to analyze the three measures of 'elitist bias' shown in Table 7.3. This indicator measures the relative importance given to different levels of education at the time of investing resources on them and tends to show higher values the less is the level of economic development. We have already had evidence of this in Table 7.2, with a range of tertiary to pre-primary education of 19.0 in Asia, 4.0 in Latin America and only 2.4 in OECD countries.

In Table 7.3 we can see that the evidence of an elitist bias associated to the level of economic development is not clear in secondary/primary, but it is clear both, in tertiary/primary and in tertiary/secondary. This bias is very probably explained by the more successful lobbying of the middle classes

¹² See Berthélemy (2005), paper presented to this conference.

TABLE 7.3. Expenditure matters (3). Public expenditure per student as a % of GDP per capita.

	Primary	Secondary	Tertiary	'Elitist' bias		
				Sec/Prim	Ter/Prim	Ter/Sec
Africa	13.4 (21)	29.2 (19)	234.8 (13)	2.18	17.5	8.04
Latin Amer.	12.7 (16)	13.8 (16)	36.3 (14)	1.09	2.85	2.63
USA	22.0 (1)	25.0 (1)	57.0 (1)	1.13	2.59	2.28
Asia	11.7 (20)	14.4 (18)	42.8 (13)	1.23	3.65	2.97
'Emerging'	16.2 (3)	20.7 (4)	65.8 (3)	1.28	4.06	3.18
W. Europe	19.7 (17)	26.1 (16)	37.7 (16)	1.32	1.91	1.44
E. Europe	22.2 (12)	20.6 (11)	25.5 (14)	0.92	1.15	1.24
Oceania	17.8 (2)	18.5 (2)	31.5 (2)	1.04	1.77	1.70
World aver.	15.5 (92)	21.0 (87)	71.0 (76)	1.36	4.58	3.38

Notes and sources. Elaborated on UNESO (2005) except USA whose data are from OECD (2005) and include public and private expenditure. Regions include all countries with data, whose number shown in is brackets. The world average is weighted.

and the rich, mostly interested in tertiary education – an even in secondary, in the less developed countries – as compared to the poor, whose main interest is preprimary and primary education.¹³

Another, very polemic but anyway relevant indicator of investment in education is class size. As we can see in Table 8, again, it is much lower in OECD countries than in Latin America, Asia or Africa concerning pre-primary, primary and secondary education. This contradicts some 'light' conclusions that have been drawn from a developed countries-centered debate, according to which a reduction in class size has no significant results in educational outcomes.¹⁴ The conclusion can tell some truth if it is referred to small increases or decreases of the class size but, at the same time, it seems pretty clear that there are thresholds beyond which class size is very relevant. In other words, one thing is to say that decreasing the size of the classroom from 22 to 20 students has no impact on educational outcomes and another one, very different, is to say that the learning process is the same with 20 or 30 something students in the classroom.

¹³ See a coincident approach in Berthélemy (2005).

¹⁴ The skeptical view of the impact of class size can be seen in *Economic Journal* (2003). On the opposite side, Piketty (2004) offers a natural experiment that shows the relevance of class size.

TABLE 8. Class size also matters Ratio of students to teaching staff in educational institutions (2003). Ratio by level of education, calculations based on full-time equivalents.

	Pre-primary	Primary	Secondary	Tertiary
OECD	14,4	16,5	13,6	14,9
Latin America	23,0	23,7	21,7	11,5
Asia	26,4	25,1	23,2	23,4
Africa	22,0	27,4	19,1	...

Notes and sources: elaborated on OECD (2005). Regions include all countries with data. OECD: all countries. Latin America: n=7. Asia: n=8. Africa: n=3.

Some Conclusions

We have shown some strong arguments in favor of the importance of educational investment regarding both, the increase in enrollment rates and the reduction of class size. It is still possible to identify a third reason to justify the need of more resources. There are not enough international comparisons regarding the length of school schedules, but very probably the reality is that in most developing countries it is limited to three and a half hours of language and mathematics, while in most developed countries it lasts up to six hours and includes arts, sports, foreign languages, technologies and other channels that allow students to develop some of their multiple intelligences (Gardner, 1993). Of course, a longer schedule also implies more resources.

Factors that support advices 1 and 3 do not end here, however. Perhaps even more interesting is the fact that in the way of comparing educational investment around the world it was possible to find evidence of an educational elitist bias, particularly in developing countries. In most of them, the educational lobby of the poor is weak. This is evident not only in the scarce attention devoted to children development policies and to pre-primary and good primary education, both of them (particularly the first one) still far beyond universalization. It is also reflected, more crudely and painfully, in the fact that the schools attended by the poor are, on average, the worst ones. Given the very well-known fact that ages up to 8 or 9 are critical to allow a good educational development, this school segregation is just the contrary to what is needed and, of course, contributes to maintain or even to increase internal social gaps, as well as international ones. That is why

the author wants to emphasize that *to give priority to the youngest and to the poorest is the truest way to get educational equity*.¹⁵

It can be asked, finally, if confronting such huge evidences in favor of the 'more education' agenda it would be needed anyway to perform the 'better education' agenda too. The answer is yes. In addition to the reasons that are possible to find in the literature¹⁶ it is possible to add another one. Educational systems in developing countries, and also in some developed countries, work in the darkness. Just to give some examples, not many countries dare to participate in the international assessments like PISA, PIRLS and TIMSS; only a few perform national assessments based on a census and almost none have statistics that allow the knowing of investment per student in each school. All this does not only hinder the development of educational policies at the school level, precisely the most important ones. Additionally, this opacity in the system impedes the poor to realize the low quality of education their children receive, giving room to other, more powerful lobbies, educational or not, to be more successful at the time of getting budgetary resources.

Just to give an end to this long enough paper it is necessary to underline the importance of giving greater diffusion to the discussion of these issues because, unfortunately, the most frequent situation in international forums is the prevalence of positions like the ones described in advice type 1 or 2. If these approaches continue prevailing we will not find the way out of international educational divergence.

¹⁵ All these developments are supported in Llach (2005, forthcoming). Among the recent contributions see World Bank (2005) on the importance of early childhood interventions.

¹⁶ See Pritchett (2004) and Hanushek (2005).

APPENDIX

TABLE A1. Educational Convergence: 1830-1930 (1). Students Enrolled in Primary Schools, per 1000 Children Ages 5-14.

	c 1830	c 1870-80	c 1930	Δ 1830/70-80	Δ 1870/1930
Africa	---	7	178		171
Egypt	---	7 (1900)	178	---	171
N.L. America	---	173	335	---	162
Brazil	---	61	215		154
Costa Rica	---	271	415		144
Mexico	---	187	374	---	187
S.L. America	---	127	585	---	458
Argentina	---	143	613	---	470
Chile	---	111	556	---	445
Asia	---	112	361	---	249
India	---	42	113	---	71
Japan	---	182	609	---	427
N.Europe	336	673	740	337	67
Belgium	346	582	701	236	119
France	388	737	803	349	66
Germany	---	711	699	---	(12)
Netherlands	---	639	780	---	141
Switzerland	---	759	701	---	(58)
U. Kingdom	274 (*)	609	755	335	146
Scandinavia	---	431	688	---	257
Denmark	---	462	674	---	212
Finland	---	68	582	---	514
Norway	685	606	717		111
Sweden	---	589	779	---	190
C-E Europe	---	384	641	---	257
Austria	367 (1840)	562	839	195	277
Hungary	---	334	495	---	161
Romania	---	256 (1900)	588	---	332
S. Europe	---	268	557	---	289
Greece	---	253	617	---	364
Italy	28	286	594	258	308
Portugal	---	132	300	---	168
Spain	---	401	717	---	316
Western Off.	---	808	935	---	127
Australia	---	598	890	---	292
Canada	---	827	966	---	139
New Zealand	---	923	962	---	39
USA	---	882	921	---	39
Statistics		x: 421.4 s: 279.9 vc: .664	x: 626.0 s: 226.4 vc: .362		

Notes and sources. N.L. America: Northern Latin America. S.L. America: Southern Latin America. N. Europe: Northern Europe. C-E Europe: Central and Eastern Europe. S. Europe: Southern Europe. Western Off: Western Offshoots. The statistics are the mean (x), the standard deviation (s) and the variation coefficient (vc). Elaborated on Lindert (2004).

TABLE A2. Educational Convergence: 1830-1930 (2). Students Enrolled in Secondary Schools, per 1000 Children Ages 5-14.

	c 1830	C 1870-80	c 1930	Δ 1830/70-80	Δ 1870/1930
Africa	---	—	—	—	—
N.L. America	---	2	7	---	5
Brazil	---	0 (1900)	8	---	8
Costa Rica	---	5 (1910)	9	---	4
Mexico	---	1 (1890)	5	---	4
S.L. America	---	4	36	---	32
Argentina	---	3	19	---	16
Chile	---	5	52	---	47
Asia	---	—	—	—	—
N Europe	8	26	63	18	37
Belgium	---	23	54	---	31
France	12	18	32	6	14
Germany	---	45	94	---	49
Netherlands	3 (1850)	6	28	3	22
Switzerland	---	62 (1890)	114	---	52
U. Kingdom	---	2	58	---	56
Scandinavia	---	21	60	---	39
Denmark	---	10	78	---	68
Finland	---	19	68	---	49
Norway	---	41	53	---	8
Sweden	---	14 (1890)	39	---	15
C-E Europe	---	11	41	---	30
Austria	7	12	48	5	36
Hungary	---	10	33	---	23
S. Europe	---	5	16	---	11
Italy	---	4	19	---	15
Portugal	---	3 (1890)	13	---	10
Spain	---	8	15	---	7
Western Off.	---	10	93	---	83
Australia	---	7	26	---	19
Canada	---	9	34	---	25
New Zealand	---	13	118	---	105
USA	---	12	193	---	181
Statistics		x: 13.8 s: 15.2 vc: 1.105	x: 50.4 s: 43.9 vc: .871		

Notes and sources: as in Table A1.

TABLE A3. Educational Convergence: 1970-2003. School Expectancy (Primary to Tertiary).
A. Developing, non European Countries.

	1970			c1998			c2003		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
All Counts.	7.1	---	---	---	---	---	11.2	---	---
S.Sa. Africa	4.2	4.4	4.0	---	---	---	7.2	8.3	7.5
Burki. Faso	0,9	1,1	0,6	---	---	---	3,7	4,3	3,0
Cameroon	6.3	7.5	5.2	7.6	---	---	9.2	10.0	8.4
Lesotho	7.7	6.5	8.8	9.7	9.2	10.3	10.8	10.5	11.1
Mali	1.8	2.4	1.2	3.9	---	---	4.9	---	---
S. Latin Am.	10.4	---	---	13.8	13.6	14.1	15.1	14.5	15.4
Argentina	10.3	10.2	10.4	14.9	14.3	15.6	16.4	15.2	17.2
Chile	10.5	---	---	12.7	12.8	12.6	13.7	13.8	13.6
N. Latin Am.	8.0	9.6	9.1	10.9	10.8	10.9	11.9	11.7	12.1
Brazil	7.2	---	---	---	---	---	14.7	14.1	15.0
Costa Rica	8.7	8.7	8.6	10.1	9.9	10.3	10.7	10.6	10.9
El Salvador	6.5	---	---	10.7	10.8	10.6	11.3	11.4	11.1
Guatemala	4.4	---	---	---	---	---	9,1	9,5	8,7
Mexico	8.3	---	---	11,8	11,8	11,7	12,6	12,3	12,7
Panama	9.2	9.3	9,1	---	---	---	13,2	12,6	13,8
Peru	9.2	10.1	8,3	---	---	---	12,1	12,0	12,3
Trinidad & T	10.2	10,3	10.2	---	---	---	11.8	11.6	12.1
Venezuela	8.2	---	---	---	---	---	11.8	11.5	12.0
Middle East	6.9	8.9	5.0	---	---	---	12.8	12.8	13.6
Bahrain	9.1	10.5	7.6	12.8	12.3	13.4	13.5	12.9	14.2
Egypt	6.2	7.7	4.5	12.4	---	---	11.6	---	---
Libyan Arab	8.4	10.8	5.6	---	---	---	16.4	15.9	17.0
Sau.Arabia	3.7	5.2	2.1	---	---	---	9.6	9.7	9.5
Asia	5.9	---	---	---	---	---	8.6	---	---
India	5.9	7.5	4.2	---	---	---	9.8	10.4	9.0
Myanmar	5.9	---	---	---	---	---	7.4	---	---

Notes and sources. All Counts.: all the countries of the Table. S.Sa. Africa: Sub-Saharan Africa. S. Latin Am.: Southern Latin America. N. Latin Am.: Northern Latin America. Elaborated on UNESCO (2005a).

TABLE A4. Educational Convergence: 1970-2003. School Expectancy (Primary to Tertiary).
B. Developed, European Countries.

	1970			C1998			C2003		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
All Count's	11.5	12,7	12.2	---	---	---	16.4	---	---
Western Of.	13.9	13.9	13.8	---	---	---	17.8	16.5	17,8
Australia	11.8	12.1	11.6	19.6	19.0	19.9	20.6	19.4	20.8
Canada (*)	15.3	15.2	15.4	16.0	15.7	16.3	16.0	15.7	16.4
New Z'land	13.1	13.4	12.7	17.5	17.0	17.9	18.9	---	---
USA (*)	15.2	15.0	15.4	---	---	---	15.6	14.5	16.1
Asia	10.4	10.6	9.8	---	---	---	14.7	15.0	14.3
Hong Kong	10.0	10.5	9.4	---	---	---	13.6	13.6	13.5
Japan	12.0	11.4	11.6	14.3	14.5	14.2	14,7	14.8	14,5
Korea	9.1	9.9	8.3	14.9	15.7	14.0	15.8	16.5	14.8
Europe N	11.6	12,3	11,3	17.0	16.7	17.2	17.3	16.4	17.9
Austria	10.5	---	---	15.2	15.2	15.1	14.9	14.5	15.1
France	11.9	---	---	15.6	15.3	15.8	15.6	15.1	15.9
Netherlands	11.6	12.3	10.8	16.5	16.7	16.2	16.6	16.4	16.6
Norway	12.0	---	---	17.5	16.9	18.0	17.8	16.4	18.5
United King.	12.0	12.3	11.8	20.0	19.3	20.7	21.8	19.7	23.3
Europe S	9.9	10.3	9.6	15.9	15.5	16.3	16.3	15.7	17,0
Ireland	10.8	10.9	10.8	16.3	15.6	16.7	16.7	15.9	17.4
Portugal	8.9	9.2	8.6	15.8	15.4	16.1	16.1	---	---
Spain	10.0	10.7	9.4	15.7	15.4	16.0	16.2	15.5	16.6
Europe, E	10.3	10.3	10.4	13.4	13.0	13.7	14.2	13.8	14.5
Bulgaria	11.1	11.2	11.1	12.7	12.2	13.1	12.8	12.7	12.8
Hungary	9.5	9.3	9.7	14.0	13.8	14.3	15.6	14.9	16.1
Statistics	x:9.03 s:3.17 vc:.351						x:13.52 s:3.87 vc:.286		

Notes and sources. All Counts.: all the countries of the Table. Western Of.: Western Offshoots. Europe N, S, E: Northern, Southern, Eastern Europe. Canada and USA, 1970, estimated on 1981 and 1985 data. The statistics belong to the whole sample (Tables A3 and A4) and are the mean (x), the standard deviation (s) and the variation coefficient (vc). Elaborated on UNESCO (2005a).

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**WHICH ANTHROPOLOGICAL BASES
FOR EDUCATION AND RESEARCH?**

BRAIN AND EDUCATION

JEAN-DIDIER VINCENT

Education is a natural and universal function in humans. It cannot be dissociated from culture, which is defined as the collective behaviors (or actions) and representations shared by a community, and which are transmitted from generation to generation in the form of units which, by analogy with genes, are called 'memes' (Dawkins). To go even further in this analogy, we could say that education is to memes what reproduction is to genes.

There are a large number of definitions of education, but Durkheim's is probably the simplest: actions carried out by adults ON and WITH children in order to integrate them into their community and to transmit their culture to them.

To educate therefore consists in giving a child a life model in conformation with the culture of our own community.

Education is as old as the human race, and is as young as every child who has to be educated.

The human being is a social animal in the most extreme form when we consider that every dimension of his or her being belongs more or less in the social domain.

In what I call the central fluctuating state that defines the animal as a subject, the extracorporeal space of the human animal is carved out by 'others'.

The apparition of education in the evolution of species is contemporaneous with the apparition of community life, with work, with art: in other words, with the birth of the social aspect of humanity.

Education has no precise origin and belongs to no culture in particular. The human being is a construction of the human being: an autopoietic process.

As Kant said, man is born twice; the first time as an animal (natural birth) and the second time as a cultured being. We can therefore say that man is an educated animal, a proposition which is fundamentally contra-

dictory since the object of education is to reduce our animality. Man is an animal that is not or is no longer an animal.

To paraphrase Kant once more, Man can only become Man by education. He is only what education makes of him. We should note that man is educated only by other men who have themselves been educated.

Education comports a negative aspect as the discipline which removes the excess of animality. As Kant (once more) remarks, man is an animal that, from the moment he lives with other members of his species, needs a master as he is certain to abuse his liberty with respect to his equals.

This absence of a finite natural definition of the human is apparent in the nature of this strange animal, a need equivalent to the need for food, water, oxygen or certain vitamins, it is the *need for others*.

Man cannot get by without man. Each man lives in the hearts of others. This ability for mutual understanding (which Rousseau calls mutual interpenetration) belongs only to the human race and I call it compassion. It is in place right from birth; little by little it allows the newborn baby to penetrate its mother's heart and install itself within by its cryings and tears, and the mother, in return installs herself in the baby's heart.

Compassion means suffering for the sufferings of others, or enjoying their pleasure. In a wider perspective, it means feeling in one's self the passions of others. Compassion requires the effective and affective presence of another person.

It seems to me that compassion is fundamental to education as it implies an exchange of sense with another being. The other, who thinks in me, and in whose place I think.

According to popular opinion, an act or a behavior is apparently a pure reaction by which the organism responds to things happening in its environment. For my part, I consider that the act results from an expressive movement which is secondary to the affective state.

In order words the state or affect precedes the action.

Pleasure and suffering make up a pair which is under the influence of the deep structures of the brain and on which all of our deeds and thoughts are structured.

One cannot confuse compassion and strength of being, but maintain a dialectic relationship. In terms of ontology, compassion is the power of giving and abandonment or the capacity of receiving the other as another. 'Reason is neither the first or the last instance in a human existence' says the philosopher Jean Ladrière.

The most basic experience is found in sensation:

– *Sentio ergo sum*

The knowledge that comes with education is what allows us to build up the mind, in other words the ‘me’ (I am self).

– *Scio ergo sum*

The heart is often referred to as the organ of compassion. It has long been known that it now ought to be replaced by the brain ‘a heart so white’ as Shakespeare said.

The human brain shows extraordinary development of its associative areas in comparison with those of other primates, i.e. the parietal and temporal cortices, and most notably the prefrontal, constitute the parts of the brain which attribute values (positive and negative), and discipline: the inhibition and the control of our actions.

The perception of space and environment need to be associated with the active motor explanation of that environment.

The brain is the organ of thought. What does that actually mean? By using the term ‘thought’, I make no reference to the spirit, I designate solely the processes of categorisation and instrumentation that an animal carries out on its world. There is nothing in that definition which demarcates the human being. The knowledge that the animal has of its extracorporeal space (environment) is registered in its brain in the form of representation and its modalities of intervention are inscribed as schemes for action.

I have proposed the term of ‘representaction’ to designate these groupings of perception and action.

Action is inseparable from representation. I cannot have a representation of the world without action or without imagining (representing to myself) my action on it.

The human being is characterised by the extraordinary richness and abundance of his or her representations. These are made in areas of the brain which are more or less specialised according to the information which is transmitted to them. By the interactions of his neuronal networks, the subject discovers the world and representacts it to himself.

Thought is made up of representations, conscient or not.

Language, which is unique to humans, is a group of representations.

Language represents three functions as a means of communicating with others:

- the *expressive* function, which serves to express emotions and thoughts;
- the *unjunctive* function, to warn or call;
- the *descriptive* function.

The first two functions of language exist in animals, but the third (descriptive) is exclusively human. It is one of the functions of language used in education.

We must also underline two other functions of language which are exclusively human:

- The *argumentative* function
- The *empathic* function

This last is essential as it permits the sharing of affect between two individuals. *Education*, which allows the transfer of representations from the master to the pupil depends on the bidirectional exchange of affect and particularly on the empathic function of language.

There is no form of education that is neutral from the point of view of affect.

In the past ten years, research in neurobiology has been focused on the motor theory of human cognition following the remarkable discovery of the so called ‘mirror neurones’ in the premotor cortex in non-human primates (Rizzolati *et al.*) and the discovery of an equivalent mirror system in humans. The goal of the motor theory of human cognition is to derive human social cognition from human motor cognition.

Briefly the theory of simulation based on the imitation of the other’s brain activity furnishes physical grounds for compassion and thus allows us to understand not only the sense of the movements carried out by the other but also the affective support for those movements. The brain of the observer could understand the actions of the other by simulating them in his brain without actually carrying them out, and simulates the same sentiments without actually feeling them by activating the same brain structures (example of bilateral lesions of the amygdala after which the subject feels no fear, but also is incapable of recognising the expression of fear on the face of someone else).

Human language represents apparently just one example of mirror motor cognition.

Another important point for education which needs to be discussed here is brain *plasticity* and *implicit learning*. Briefly, research on implicit learning has shown that the brain processes information that is neither attended to or noticed.

Plasticity can be demonstrated in the brain of animals as it plays a major role in memory, particularly in the processes of acquisition and conservation of new information arriving from sensory organs.

In our laboratory, with Pierre-Marie Lledo, we have shown the role of stem cells in the olfactory memory of the mouse. An increase in incoming

sensory information is translated by an increase in the migration of newly formed neurones and this is translated in behavioral terms by an improved memory of odors.

Plasticity exists in the brains of children but also in adults. One particular deep structure of the brain, the hippocampus, is particularly implicated in factual memory and in spatial memory. The hippocampus possesses so-called 'place cells' which are at specific locations suggesting that the HPC creates and stores spatial maps.

Recently, using functional RMN, researchers have studied the brain of people who are experts in spatial navigation, namely London taxi drivers: their brains were scanned whilst they described a complex route they would take to get from one area of London to another. The hippocampus was dramatically activated, and a significant difference was found in the size of the hippocampus between taxi drivers and non taxi drivers.

Other studies have shown the same type of plasticity in the human motor system during the acquisition of new fine motor skills, i.e. the area responsible for finger movement is enlarged and becomes more active after piano exercises in a beginner.

FMNR (functional magnetic nuclear resonance) studies have shown the effects of rehearsal of items i.e. specific verbal information on brain activity in the left inferior parietal cortex, and in the left inferior prefrontal cortex in rote learning. Mental exercises activate the same areas as those that are active for actually carrying out real actions. There is also interesting data concerning the role of linguistic culture in the activation of different brain areas during reading.

One of the most important conclusions of these experiments on plasticity: it is never too late to start learning.

To conclude this too rapid review, I would like to particularly insist on the role of affect and emotions in the quality of learning. Compassion and bidirectional exchanges between the pupil and the master are the cornerstones of learning.

From a strictly bio-anthropological point of view, I shall just make a few remarks.

The classical dichotomy between thought modes is not relevant in terms of biology. Each individual human brain is unique, resulting from not only his genes but also his experience in his environment. There is only one model of human brain.

The universal developmental stages are correlated with critical periods for fundamental acquisitions which are the same for all children.

The acquisition of sensorial capacity (skin) is inseparable from motor experience.

Verbal supports, and particularly their affective components are indispensable in all forms of teaching/learning.

Conclusions

The problems of children at school in the occidental world today, and particularly in France, are based on a misunderstanding of affect, problems of identification with others. Children suffer from a lack of identity; they are not able to forge a personal identity strong enough to allow them to confront the world of others. Children have difficulty in integrating the things they have to learn concerning their own life. The first difficulty is well upstream of actually acquiring any knowledge. Is later learning therefore condemned to impotency? Yes, unless there is an investment in affect, which effectively represents a risk. For this reason, one of the keys for reforming our school system resides in the formation of the teachers. In Africa, because there are no teachers, and particularly in Europe, because the formation period of the teachers is too short, too theoretical whilst at the same time teaching conditions are becoming more and more difficult. The result is clear today in the events in the French suburbs. And it is true to say that when there is no joy in teaching, there can never be a desire to learn.

EDUCATION BETWEEN ETHICAL UNIVERSALITY AND CULTURAL PARTICULARITY

JÜRGEN MITTELSTRASS

At no time of his individual development is man ever a complete being. This fact is not only part of every personal experience, but it is also a starting point for every (philosophical) anthropology. For example, according to Max Scheler, man is the 'X that can behave in a world-open manner to an unlimited extent';¹ according to Helmut Plessner, man is characterised by an 'eccentric positionality',² whereby his eccentric existence, which possesses no fixed centre, is described as the unity of mediated immediacy and natural artificiality. Accordingly, Plessner formulates three *fundamental laws of anthropology*: (1) the Law of Natural Artificiality, (2) the Law of Mediated Immediacy, and (3) the Law of the Utopian Standpoint.³ Similarly, Arnold Gehlen states the thesis that man is by nature a cultural being,⁴ whereby his cultural achievements are seen as compensation for organs and man is defined as a creature of defect (*Mängelwesen*).⁵ For Friedrich Nietzsche, man is the not-yet-determined animal,⁶ whereby science too is seen as the expression of human endeav-

¹ M. Scheler, *Die Stellung des Menschen im Kosmos* (Darmstadt: Otto Reichl, 1927), p. 49.

² H. Plessner, *Die Stufen des Organischen und der Mensch: Einleitung in die philosophische Anthropologie* (Berlin and Leipzig: de Gruyter, 1928), pp. 362ff.

³ H. Plessner, *op. cit.*, pp. 309-346. See K. Lorenz, *Einführung in die philosophische Anthropologie* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1990), pp. 102f.

⁴ A. Gehlen, *Anthropologische Forschung: Zur Selbstbegegnung und Selbstentdeckung des Menschen* (Reinbek: Rowohlt Taschenbuch Verlag, 1961), p. 78.

⁵ A. Gehlen, *Der Mensch: Seine Natur und seine Stellung in der Welt* [1940], 9th ed. (Wiesbaden: Akademische Verlagsgesellschaft Athenaion, 1972), p. 37.

⁶ F. Nietzsche, *Jenseits von Gut und Böse* [1886], in F. Nietzsche, *Werke: Kritische Gesamtausgabe*, G. Colli and M. Montinari (eds.), vol. VI/2 (Berlin: de Gruyter, 1968), p. 79.

our 'to determine himself'.⁷ This opens up a broad horizon for an answer to the question as to what we are. Education in general, not only anthropology in a stricter sense, is a means for dealing with this condition in a productive way that also facilitates a human life.

Education is always education in the context of a given culture. Cultures are systems of values, of (legally defined) modes of action, and of symbols. As such, cultures are particularities – their values are always particular values, their modes of action are determined by tradition, their symbols express a particular world view, which means that they produce or represent (parts of) cultural worlds. *Cultural particularity* is, in this sense, an essential moment in every kind of education. Education always moves in a cultural environment, it is intra-cultural.

Education is, however, not only intra-cultural, but also *trans-cultural*, in the sense that it follows ethical principles which are not particular principles and as such part of different morals. Ethics in general is a critical theory of morals. It assesses socially implanted systems of action and goals, and it is universal (not particular) if it makes universal claims of validity. This means that for *ethical universality*, for a universal ethics, it does not derive its validity from the values of certain (particular) cultures, but rather that it appeals to a general will which is best expressed in Kant's categorical imperative. Expressions of a corresponding ethical universality are, for example, human rights and, in connection with these, the concept of human dignity.

A fundamental problem of education consists in linking both its constitutive moments, namely cultural particularity and ethical universality. The question is how much ethical universality is necessary in education, and how little cultural particularity is possible? The answer obviously lies in a kind of dialectics between the particularity and the universality of moral or ethical principles in education.

However, there are problems not only in this dialectical relationship, but also in the fact that universal ethics is often seen as typically 'European', i.e. determined by Christianity and the Enlightenment, and therefore, if considered from the outside, it is seen once more as particular; besides, with the concept of a multicultural society, the dialectics

⁷ F. Nietzsche, *Nachgelassene Fragmente Frühjahr 1881 bis Sommer 1882*, in F. Nietzsche, *Werke: Kritische Gesamtausgabe*, G. Colli and M. Montinari (eds.), vol. V/2 (Berlin and New York: de Gruyter, 1973), p. 533.

between different conceptions of culture and ethics becomes transposed from the relationship of different cultures with one another into culture itself. On what basis can we say that universal ethics, seen in cultural terms, is not particular? And what shape could education take in a multicultural society, assuming that this exists at all? This paper will deal with these issues in three propositions and their elucidation.⁸

1. *In a global economy not only do economic structures change but social structures as well. One of its results is an increasing particularization and individualization of the forms of life and the substitution of the concept of self-determination by the concept of self-realization.*

There are some words that saunter up on velvet paws and then whip out their claws. Globalization is one such word. It means, as we all know, the free transfer of raw materials, commodities, capital, services, and labour across all geographic and political boundaries. The (older) concept of *internationalization*, on the other hand, indicates a growing proportion of international trade and its increasing interlocking as well as the motions of capital, labour, and know-how between different national economies and their economic agents – and in this sense is a concept derived from national relations. In contrast, such limitations disappear in the case of globalization. What is global is not derivative, but what is given first; economic and political boundaries, which thus far have determined at least the ‘beginning’ of economic action, are dissolving.

Furthermore, the concept of globalization is not merely an economic concept or one of economic policy, to the extent that these concepts refer only to economic activities from the perspective of competition, but rather also a concept which increasingly includes cultural developments as well. Therefore, it is right to say

that globalization comprehends more factors than were observable in earlier stages of development and that our entire social and institutional fabric will change fundamentally. Even if globalization ... is economically induced, the consequences extend far

⁸ Here I refer to some earlier observations, among them the concept of the Leonardo world, the concept of education and to the distinction between instrumental knowledge and orientational knowledge: J. Mittelstrass, *Der Flug der Eule: Von der Vernunft der Wissenschaft und der Aufgabe der Philosophie* (Frankfurt: Suhrkamp, 1989); *Leonardo-Welt: Über Wissenschaft, Forschung und Verantwortung* (Frankfurt: Suhrkamp, 1992).

beyond this area and have thus far been little understood – especially in their significance for us in our social relations and organizational structures.⁹

In this sense the concept of globalization comprehends the new information and communication technologies as well, which are largely not subject to local control, the rise of supra-national political institutions (keyword: ‘globalization of the political’), and the increasing homogenization of education and research structures. Not only is an economic and political dimension defined but also general social and cultural dimensions.

If this analysis is right – and there is little doubt that it is – then globalization is the keyword for a multidimensional transformation process of modern society into a – rather imprecisely determined – future. Not only are enterprises in the traditional sense being dissolved by becoming ‘virtual’ enterprises, that is, by being replaced by a network of regional independencies, but the same holds for social structures, which up to now have been defined essentially by national and cultural stabilities.

Modern society is changing, and society itself doesn’t have a clear view of its change. This is easily illustrated with a variety of labels such as ‘post-modern society’, ‘information society’, and ‘risk society’. They all claim to represent the nature of modern society in its contemporary and future form, but these analyses remain unclear and controversial. But for all of them the following seems to be the case: Modern society is leading into an increasing *particularization* and *individualization* of the forms and manners of life. Uniform ways of life and uniform points of orientation are decreasing, *pluralization* is increasing (also in the development of new forms of life). This is true both of private life (family, leisure) as well as for large parts of professional life, namely in the further development of more individualistic forms of work. CVs become more and more diverse, more plural. The pluralization of life-forms, which gets expressed in the particularization and individualization of life-forms is also mirrored in the theory of modern society. Also there, pluralism is increasingly playing a major role. In this sense in contemporary society there is a bottom-up pluralization (in social practice) as well as a top-down pluralization (in social theory).

Another consequence of the development from traditional to pluralistic life-forms that affects both practice and theory of modern society is an

⁹ U. Steger, ‘Einleitende Zusammenfassung: Globalisierung verstehen und gestalten’, in U. Steger (ed.), *Globalisierung der Wirtschaft: Konsequenzen für Arbeit, Technik und Umwelt* (Berlin/Heidelberg/New York: Springer-Verlag, 1996), p. 4.

increasing particularization of the 'compartments' of reality in which the individual is living, for instance, family, professional life, leisure, political life. These areas are drifting apart, the individual is living in a plurality of worlds which have less and less to do with each other. We lose sight of the whole, which characterizes a life, the individual as well as the social. The *structures of orientation* are also affected by this. The corresponding features of cultural change are the de-traditionalization and de-conventionalization of modern society – including new forms of fundamentalism and the development of sects as the other side of the coin. The normative force of traditions and customs becomes weaker, compare for instance the decreasing influence of the churches in Western societies.

Part of the de-traditionalization is the dissolution of cultural identities, which today, with the impression of problems of migration in Europe, gets talked about as the development towards a *multicultural society*, which itself is an important element of cultural dynamics. In political discourses, the reality of individual forms and manners of life, which remain comprehensible intra-culturally, connects itself with the problem of preserved cultural identity, or cultural autonomy of groups of immigrants. However, culture here often gets confused with cultural folklore, namely when legal obligations are exempted from the demands of cultural identity or cultural autonomy, as if they didn't belong among the central elements of cultural identity. In reality, the problem of a pluralization of social forms of life gets belittled in the concept of multicultural society. After all, liberties and self-determination of reclaimed cultural identity end at the limits of human rights and (national) laws. The multicultural is hence an important cultural aspect of the pluralization of life-forms, but not an element of a 'new' society.

Related to the general pluralization of modern society we also witness a pluralization of *ways of learning*. Their dominant indication is the influence of the media and information technology in particular. These are not just some of the modern world's most influential architects, but also a part of the 'schooling' of children and teenagers. The processes of learning are de-institutionalising, they become more liberal and, with that, less easy to control and more manipulable. The anonymisation of the learning processes has found its modern form of orientation in the media; compared to which earlier forms of appropriation, also those we know from communist states, appear almost harmless. Free media do not free the individual – still less, young ones. In those places where they do not presume it – as the ideal of an enlightened society would have it – they rather take its place by occu-

pying its consciousness, directing its perceptions and experiences, and influencing the view of the world through their pictures. School, or the family, has little power to influence this.

Also connected to the increasing particularization and individualization of life-forms and manners of life is the issue of *self-realization* – linked in an often rather unclear way to the older idea of emancipation in social matters. Self-realization here typically means the self-determined growing independence of the individual. But it is often precisely the concept of self-determination which loses its original meaning, stemming from the enlightenment, namely, the practiced autonomy in matters of orientation. *Self-determination* here simply means the living of one's individuality, it means simply *to be* this individuality. A sensible social construction of reality gets lost sight of, and with this, the reclaimed self-realization also conflicts with the nature of humans – that of a being of needs. Put differently: Only where self-determination is an element of self-realization in the demanding, accountable sense, is self-realization an element of reasonable conditions of life. But precisely this is less and less the case today. Lived, unreflected self-realization is taking the place of realized (accountable) self-determination.

2. When the market becomes the measure of all things and man withdraws behind his economic goods, when the distance between instrumental knowledge and orientational knowledge widens and our world turns into a Leonardo world, culture and education become a concrete utopia.

Education is the expression of a culture in which, according to the European idea, the rational nature of man is realised. This culture is not something external to the modern world, something that has to be lovingly preserved and nurtured for the very reason that it is superfluous to the future of this world. Culture is rather *the world itself*, a world that has been transformed into the world of the human being, who can only recognise himself in those things that he has made himself. He recognises himself not only in those things to which he lends objectivity, as in the sciences, but also in those that partake in his subjectivity. Man moves in this world by discovering, interpreting, and shaping it. In doing so he makes this world. And thus the modern world is always, within this context of discovery, formation and invention, a cultural world. It may sometimes forget this fact, above all in the pursuit of political and economic affairs. But it cannot divest itself of its cultural form.

Education is at the same time the obverse of culture – culture that has become a form of life, indeed an individual form of life. And thus education is above all non-theoretic. It is an ability and a form of life, and not merely a matter of knowing one's way around the stacks of knowledge. Wilhelm von Humboldt is still in the right. An educated person for him is someone, who tries 'to grasp as much of the world as is possible, and who tries to bind it to him as tightly as possible'.¹⁰ Thus the concept of education in both the classical and the modern sense includes the concept of *orientation*. Orientation is itself something concrete, not something abstract like theories, or the manner in which theories are transmitted. The locus of orientation is the life-world, not the conceptual or theoretical world. And this holds true of education as well. Education and orientation are structurally correlated, not so much in the form of science (and by science I mean in general the German *Wissenschaft*, which includes the humanities and the social sciences) as in the form of life, that is to say in the form of an ability. We might, following Humboldt, say that it is the ability to integrate the world in oneself and to express the world in itself. Put otherwise: Knowledge is, at least when one considers knowledge and experience as well as sensibly dealing with them, the universal expressed as a particular.

What I have just formulated in rarefied and abstract – that is to say in what is commonly called educated language –, describes quite exactly, in my opinion, the sense in which a humanist educational ideal might be reintroduced into our culture. It is concerned with an active conceptualisation of the world; it is opposed to an essentially economic preference of the *Zeitgeist* for a divided self, that is to say one that is split into a private, a social and a consumer self. Thus it is concerned with the restoration of an undivided self, and with restoring clarity to the concept of knowledge by means of which our society defines itself. It is just this clarity that we are beginning to lose.

Let me return to the concept of orientation once more. In modern society the distance between *instrumental knowledge* and *orientational knowledge* is increasing. Instrumental knowledge is knowledge of causes, effects, and means, orientational knowledge is knowledge of justified ends and aims. Instrumental knowledge is *positive* knowledge, orientational knowledge is *regulative* knowledge. And things do not look very good for regula-

¹⁰ W. v. Humboldt, 'Theorie der Bildung des Menschen (Bruchstück)', *Gesammelte Schriften*, vols. I-XVII (Berlin: B. Behr, 1903-1936), vol. I, p. 255.

tive knowledge today. Science has lost sight of this knowledge – and, to a large extent, society has as well. The consequences are weakness of orientation (though not yet loss of orientation), self-doubt and the tendency towards fundamentalism of different kinds. That also belongs to the particular character of the modern world, a Leonardo world. Let me expand on this point briefly.

Our world, the world which has just been described in terms of a widening distance between instrumental knowledge and orientational knowledge, is the work of man. ‘Natural’ worlds exist only on the margins of this world, and they are becoming ever fewer and ever weaker. This is not simply an incidental but a logical result of the developed essence of man. We live in a world that in its structures and its forms of life is the expression of the scientific and technical understanding. Science today is everywhere, and so is technology. Wherever we go in our world, we find that the modern mind is already there: grounded on the scientific and technological know-how it produces, builds, administers, and destroys. I call this world the *Leonardo world* after Leonardo da Vinci, the great Renaissance engineer, artist, philosopher, and scientist. What I mean is a world in which man no longer moves merely as a discoverer, as a stranger in a strange land – I call this a *Columbus world* – nor with which man is essentially linked by means of his interpretations and symbols – I call this a *Leibniz world*. It is rather a world in which man is constantly confronted with his own work, a world that in the hands of the scientific and technical mind is becoming ever more an *artefact*, fragile like nature but ever less natural.

The Leonardo world is in this sense an artificial world, but there is ever less natural world beyond its boundaries to correspond to it. The Leonardo world has become boundless. This means, in turn, that science and technology, that is, the constructors of this world, are drawn ever deeper into their own world. Man confronts himself in his own works and has become a part of his own work. Will he be able to free himself from this situation – one in which the world does not belong to him, but rather he to the world, a world created by him? What role does education play and what is the one played here by ethical universalities and cultural particularities which are, in turn, threatened by globalization? What is the matter with the dialectics mentioned earlier, between the particularity and the universality of moral or ethical principles in education? And again, on what basis can we say that universal ethics, seen in cultural terms, is not particular? I hereby come to my third thesis.

3. *Globalization and universality are not the same. Globalization controls economic and cultural development; whereas universality, in the shape of universal reason and universal ethics, governs universal claims to validity. In the Leonardo world, the fate of education hangs between ethical universality and cultural particularity.*

In a world in which globalization determines not only the pace of economic development, but also that of cultural development, in a world which is a Leonardo world ruled by scientific and technical spirit, the old philosophical dream of a *universal form of life* expressed by a general world culture made up of and increasingly driven by economic culture, seems to become real. The 'project of modernity' (Habermas) prefigured in the writings of the Enlightenment is steered by a *principle of universality* and the idea of permanent peace (Kant), namely by the concept of *universal reason* before which all privileges favouring origin, race and gender are removed, and by a world-society or world-government constituted as a republic, in which universal reason would finally become fully realized. Is globalization not then, in this case, 'the ruse of reason to bring itself into cultural reality as a universalizing ability'?¹¹ Hence, is it not also, so asks the philosopher, 'the local and regional identities, the cultural contexts, the particular economic styles, illegitimate conditions that are to be overcome in the name of humanity, be it with the beneficial force of authority?'.¹²

The answer is that (economic and cultural) *globalization* and (philosophical, in a stricter sense ethical) *universalism* are not the same. While globalization means first of all a further dissolution of frontiers in the economic process, and then in turn, within this process, the possible emergence of a uniform world culture, universalism aims at the assertion of universal claims of validity, for example in the form of human rights, though not as a universal life form, even though this might acquire to a certain extent, as a by-product of economic processes of globalization, more and more reality.

If, conversely, all this does not result in a universal way of life, it does not mean that universalism comes any closer to doing so. On the contrary:

The current process of globalization does not only involve no fostering of universalism, instead it seems even that opposite tenden-

¹¹ C.F. Gethmann, 'Universalismus und Globalisierung', in K. Pinkau/M. Popp/Chr. Stahlberg (eds.), *Der Universitäts- und Forschungsstandort Deutschland im globalen Markt* (Stuttgart: Hirzel, 1998), p. 54.

¹² *Op. cit.*, p. 50.

cies are emerging: If the observation holds that regional conflicts caused by religious and other cultural diversities increase in number and militancy, and that sects of a fundamentalist nature within Western civilization gain recently more and more followers, then we can assume that the dynamics of globalization not only do not foster universalism, but, moreover, that the dialectical countermovement of regionalization strengthens particularity.¹³

While regionalisation belongs essentially to globalization as its complement or 'dialectical countermovement', particularity represents quite simply and in a non-dialectical way the opposite of universalism: fragmenting claims of validity into particularities is not part of universalism, but rather its negation.

We should keep this in mind if we wish to draw far-reaching conclusions from the fact of globalization to the (emerging) fact of universal reason or universalism. In other words: globalization is in essence an economic process with secondary cultural effects; universalism is a philosophical principle which, against all particular claims of validity, asserts the idea of universal reason, including the idea of man as a rational being, and of ethics as rational ethics. The ideals of education should follow this argument – against the development of a process of individualisation and pluralisation of life – forms that I have described and against the disintegration of instrumental knowledge and orientational knowledge that accompanies this development.

At the beginning I said that education always means education in the context of a given culture – cultures being systems of values, of (legally defined) modes of action and of symbols, which produce or represent (parts of) worlds. In this sense, education is always intra-cultural. But it is, again, also trans-cultural in the sense that, according to the concept of universalism, it follows the idea of universal reason and, in this context, ethical principles which are not particular principles but universal principles. This, too, presupposes the idea of universal reason and universal ethics, the principles of which are universalistic.

Universal ethics holds that it does not derive its validity from the values of certain (particular) cultures, but rather from a general will which is best expressed in the formula of Kant's categorical imperative:

¹³ *Op. cit.*, p. 55.

Act in such a way that you always treat humanity, whether in your own person or in the person of any other, never simply as a means, but always at the same time as an end!¹⁴

Only the 'rational' being exists as 'an end in itself',¹⁵ which is why for Kant only rational beings have 'dignity'.

Such universal ethics, just as the underlying idea of universal reason, are, as has been mentioned before, often said to be typically European, determined by the ideas of Christianity and the Enlightenment, so that, at least if seen from the outside, they appear as particular. Yet this is a misunderstanding. After all, its expressions of a corresponding ethical universality are, as also stated already at the beginning, human rights and, in connection with them, the concept of human dignity.

Thus, with respect to the notion of universal reason, and against the assumption that reason be no more than a feeling or even essentially organized in a pluralistic way, reason is a cultural fact, but it is not a condition on culture. This means that if cultures claim their values to be more valid than those of other cultures, they have to justify these claims of validity in the face of reason, and not the other way round. Therefore, reason is simultaneously a *principle of universality* (against claims of validity on the basis of origin, social class, gender, race, etc. and a pluralistic understanding of reason), a *principle of transsubjectivity* (reason as transcending pure subjectivity) and a *principle of legitimation* (referring to claims of validity that cannot be relativised).

This does not exclude a dialectics of ethical universality and cultural particularity in the context of education. Indeed, universal principles too must normally be learnt in the context of cultural particularities. To this extent, particular cultures point beyond themselves, namely towards a general culture of reason in which the essence of man, his rationality and his dignity are expressed. This essence must be achieved over and over again – against particular concepts of the good, the just and the rational, assumptions which aim at taking the place of the universal. The universalism of reason does not admit particular worlds which pretend to be the essence of reason themselves.

¹⁴ I. Kant, *Grundlegung zur Metaphysik der Sitten* B 66f. (*Groundwork of the Metaphysics of Morals*, H.J. Paton (ed.), New York: Harper & Row, 1964, p. 96).

¹⁵ *Op. cit.*, B 65 (*Groundwork, ibid.*).

This is particularly relevant nowadays to so-called *multicultural societies* where globalization is mirrored in the particular (regional). Here, however, the question arises whether a multicultural society, namely a society that consists of different cultures and tribes, in spite of this, to find its own identity, is at all possible. It would be among other things a society in which there are no more (cultural) majorities and consequently, no cultural minorities. The answer has to be no. Real identity generates only in *one* world, in a common world. And how should this common world exist, if it is made up of different cultures – each with their own world-view? It is as with language: he whose language one does not understand has a view of the world one does not understand, and thus inhabits a world one does not understand. For language articulates the world; and what is thereby articulated is the way the world *is*.

Conclusion

From a philosophical perspective, it is not decisive how education adapts itself to the conditions of an ever-increasing globalization, but how a universal principle of reason or ethical universality and cultural particularity come together to a single world in the realm of education, without reason losing its universal essence and the world losing its cultural diversity.

Statement on
GLOBALIZATION AND EDUCATION

This Statement on Globalization and Education was produced by the joint workshop on the same subject of 16-17 November 2005 which was held at Casina Pio IV. On the basis of a text by Prof. Léna, Prof. Malinvaud, and the Bishop-Chancellor Sánchez, and in response to proposals made by the President of the PAS, Prof. Cabibbo, Prof. Battro, Prof. Gardner, Prof. Hide, Prof. Llach, Prof. Mittelstrass, Prof. Ramirez, Prof. Ryan, and Prof. Suárez Orozco, followed by a discussion between Prof. Léna, Prof. Malinvaud and the Chancellor, this document was formally approved by the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences.

A human community that always thinks anew the goals of education possesses a healthy circulation of ideas and energies for the good of its members. Each generation should re-consider how to pass on its culture to its successors for it is through education that man becomes fully who he is, aware, free and responsible, a citizen of the world. To think about education is to think about future generations and thus is rooted in hope and requires generosity.

Globalization properly managed may provide a chance for education and peace, bringing human beings closer to one another and fostering the sharing of common values.

As in all human matters, education first and foremost must have an idea of what a human being is, because men and women are those who are educated and those who educate. Thus education must answer a key question, namely: what do we know today about men and women?

The workshop sought to examine what an educational project could be in an increasingly globalized world. This project must be based on our current bio-anthropological knowledge of men and women, in dialogue with the sciences, within the context of the diversity and interdependence of cultures and the universality of religious, anthropological and ethical values, which increasingly intersect with communication and information technology, as well as with the new patterns of international migration.

In our globalized world, the problem of justice is central: namely that all men and women, wherever they are and whatever their condition of life, should have the right to, and the possibility of, a good education and general access to culture. This means a goal of basic education – up to nine years – for all, then secondary and higher education on the basis of abilities and resources. Clearly, the globalized world also implies an improvement in education not only for the inhabitants of the developing world but also for the developed one. For all people today there is a tremendous wealth of knowledge which is unparalleled in history and which should be made available through new and suitable processes of synthesis and transmission. Everyone has the right to an education that sees the environment as a home, so as to prevent it from becoming harmful to health or unfriendly.

The workshop reached the following conclusions:

1. Despite the many declarations and statements of objectives, enunciated by the United Nations and other agencies, and despite significant efforts in some countries, education remains extraordinarily uneven within the world population, although the resources needed to improve this situation do not seem to be out of reach. A special cause for concern over the last decade has been the divergence and growing inequality, which is concomitant with globalization and related to policies in education, between developed or emerging countries and stagnating ones, the latter being caught in a poverty trap.
2. Given the growing importance of education, now more important than ever before in human history, of equal cause for concern is the wide and frequently increasing quality gap between schools attended by the poor and schools attended by those who are not poor. This happens in such a way that differentiated or segregated educational pathways often emerge. Most alarming is the fact that world-wide nearly 200 million children and young people who should be receiving basic education are not enrolled in school at all.
3. Today, in the face of globalization, global migrations, the explosion of knowledge and the concomitant emergence of a knowledge-intensive economy, and above all the compelling obligation to fight poverty by all means throughout the world, education may require serious re-thinking. The adverse consequences of inadequate education policies for poor people are amplified by globalization.
4. Globalization has provoked an unprecedented increase in migrant populations either within host countries or within large countries. Today,

international migrations are an integral part of global development. Migrations can be an extremely positive factor in mutual understanding and the mixing of cultures. Education plays an important role in the integration of the children of immigrants world-wide. While some of the children of immigrant families do better at school than the children of indigenous families, others seem to be marked out early on for social rejection and the experience of problems. Reducing the fracture with native cultures and languages, and helping to maintain family stability, are among some of the paths by which to achieve improvements in this area.

5. Education should aim at the full development of the human person, the promotion of the meaning of human dignity, and the strengthening of respect for human rights and fundamental freedoms. It should enable all persons to participate effectively in the human family and should advance understanding, friendship, and co-operation between all peoples, ethnic groups and religious communities. Education should also transmit knowledge, higher-order cognitive skills and the interpersonal sensibility required to help boys, girls, men and women to become fully themselves and to interact with others. It should develop their ability to observe, to reason, to synthesize and create ethical values, and to develop a sense of justice, respect, tolerance, and compassion for others. It should emphasize the responsibility of people to protect the environment for the benefit of present and future generations, preventing pollution and ecological deterioration and promoting conservation and sustainable development. In its transmission of knowledge and its fostering of creativity, education should convey the deep lessons of the past and communicate the opportunities and risks that will be faced by humanity in the future.

6. In particular in the context of globalization, respect for cultural diversity and the preservation of the elements of cultural identity are essential in the educational process. New generations have to understand in a clear way their own culture in relation to other cultures in order to develop self-awareness when facing cultural changes and to promote peaceful understanding and tolerance, thereby identifying and encouraging true human values within an intercultural perspective.

7. At the same time, education should aim to establish that common sense of humanity which is essential for the maintenance of peace. This could be achieved by drawing on the universality of ethical principles and norms, which are, for instance, expressed in the concepts of human rights and the dignity of the person, as well as on the universality of knowledge,

wisdom and science. It is thus also necessary to offer at some points in the educational process the new image of the universe that the scientific community has proposed of the cosmos, the Earth, life, and the emergence of humans and their societies.

8. The relativist and nihilistic tendencies of some modern movements, which Benedict XVI and his predecessors have criticized with increasing force, have been matched by a welcome and progressive return of ethical, philosophical and religious questions. The 'wonder' that stimulated the origin of science and the path taken by science has not diminished but increased with the new discoveries in the physical and life sciences. This 'new world', which has been increasingly investigated by man, has given rise to even greater amazement at the universe which could open up a new positive horizon of meaning by which to understand the mystery of the Creation. In this way, as a result of science, religion and philosophy have returned to the fore, as is demonstrated by the increasing attention paid to their recognized roles in their quest for truth. From this springs the need to take into account science, philosophy and religion, and their correlative interdisciplinary dialogue, in establishing a sound anthropological basis as the pre-condition of education today.

9. Education begins in the maternal womb and at birth. Mothers, fathers and families in their primary educational role need help to understand – in the new global context – the importance of this early stage in life, and should be prepared to act accordingly. One of the critical paths to a higher quality of education at the school level is the increased participation of families and local communities in the governance of their educational projects.

10. Human development depends upon multiple parameters such as education, health, and cultural visions of the family and of the respective roles of men and women in human society. Yet it can be asserted that education, especially at the primary level, remains dramatically insufficient in some parts of the world. The 'classic' basic skills expected of primary education – reading, writing and arithmetic – are no longer sufficient in a globalized world. They need to be supplemented by skills leading towards such objectives as the improvement, the protection or the preservation of work abilities, the cultural and linguistic heritage, ethical values, social cohesion, and the environment. In the future, this classic triad may expand into a new objective: 'reading, writing, mathematics, reasoning, synthesising'.

11. Teaching requires on the part of teachers a high level of knowledge so that students, who learn through the process of instruction, may achieve

a standard of education that they would not obtain on their own. Their role as agents of education has to be recognised and supported by every possible means: for example, continuous coaching by those who have a more direct access to knowledge (especially trained scholars and scientists), the updating of professional training, suitable salaries, and the availability of information technology. In order to facilitate a successful educational process, and so as to provide every member of society, and communities themselves, with that level of knowledge and learning which is a primary factor in conferring autonomy and encouraging co-operation, it is important to aim for high standards of quality within the teaching profession, especially at the level of higher education. This is also required so that, given that the expertise of every teacher is limited, what a student does not learn from one teacher he or she may learn from another, and so that teachers may learn from each other within a context of synergy. To support and promote this dual process, which is at the origin of schools, universities and other educational institutions, suitable national, international and private resources must be made available to them so that, throughout the world, they can carry out their tasks in an effective way.

12. Communication and information technology (IT) offers extraordinary opportunities for the renewal of education because of its capacity to connect people, its ability to promote the accessibility of remote areas, its decreasing costs, and the potential volume of the information it can convey. It will thus be possible to reduce the costs of education for each child, even in poor areas. However, IT tools do not necessarily achieve education on their own. They need to be accompanied by a conceptual vision in order to promote dialogue, the active participation of teachers, the organisation of knowledge, and an awareness of the importance of values.

Erklärung zu

GLOBALISIERUNG UND BILDUNG

Diese Erklärung zu Globalisierung und Bildung wurde anlässlich eines gemeinsamen Workshops zu demselben Thema erarbeitet, der am 16./17. November 2005 in der Casina Pio IV. abgehalten wurde. Auf der Grundlage eines Texts von Prof. Léna, Prof. Malinvaud und Bischof-Kanzler Sánchez und als Reaktion auf die Vorschläge des Präsidenten der PAS, Prof. Cabibbo, Prof. Battro, Prof. Gardner, Prof. Hide, Prof. Llach, Prof. Mittelstrass, Prof. Ramirez, Prof. Ryan und Prof. Suárez Orozco, einschließlich einer Diskussion zwischen Prof. Léna, Prof. Malinvaud und dem Kanzler, wurde dieses Dokument von der Päpstlichen Akademie der Wissenschaften und der Päpstlichen Akademie für Sozialwissenschaften offiziell gebilligt.

Eine menschliche Gemeinschaft, die stets die Ziele der Bildung neu überdenkt, verfügt über einen gesunden Kreislauf von Ideen und Energien zum Wohl ihrer Mitglieder. Jede Generation sollte erneut überlegen, wie sie ihre Kultur ihren Nachfahren weitergibt, denn durch Bildung wird der Mensch vollständig zu dem, der er ist, bewusst, frei und verantwortlich, ein Weltbürger. Ein Nachdenken über Bildung bedeutet ein Nachdenken über künftige Generationen, wurzelt somit in der Hoffnung und erfordert Großzügigkeit.

Richtig gehandhabte Globalisierung kann eine Chance für Bildung und Frieden bedeuten, die Menschen einander näher bringen und das Bestreben verstärken, gemeinsame Werte miteinander zu teilen.

Wie bei allen menschlichen Belangen muss der Bildung zunächst und in erster Linie eine Vorstellung davon zugrunde liegen, was der Mensch ist, denn es sind Männer und Frauen, die Bildung erhalten und Bildung weitergeben. Somit muss Bildung eine Schlüsselfrage beantworten, nämlich die: was wissen wir heute über Männer und Frauen?

Der Workshop bemühte sich zu untersuchen, was ein Bildungsprojekt in einer zunehmend globalisierten Welt sein könnte. Ein solches Projekt muss auf unserem derzeitigen bio-anthropologischen Wissen über Männer und Frauen gründen, im Dialog mit den Naturwissenschaften stehen, sich innerhalb eines Kontextes der Vielfältigkeit und wechselseitigen Abhängigkeit der Kulturen bewegen sowie der Universalität religiöser, anthropologischer und ethischer

Werte. Mittels der Kommunikations- und Informationstechnologie kreuzen sich alle diese Gegebenheiten und Kräfte zunehmend. Schließlich muss ein solches Projekt auch die neuen Muster internationaler Migration einbeziehen.

In unserer globalisierten Welt ist Gerechtigkeit ein zentrales Thema: das heißt, alle Männer und Frauen, wo auch immer sie sich befinden und welches auch immer ihre Lebensbedingungen sind, sollten ein Anrecht auf eine gute Bildung, Möglichkeiten der Erziehung und einen allgemeinen Zugang zur Kultur haben. Dies beinhaltet das Ziel einer Grundschulbildung – bis zu neun Jahren – für alle, und sodann höherer und akademischer Bildung nach Maßgabe der Fähigkeiten und der Mittel. Es ist klar, dass die globalisierte Welt auch eine Verbesserung der Bildung nicht nur für die Bewohner von Entwicklungsländern, sondern auch für die der entwickelten Welt mit sich zu bringen hat. Für alle Menschen ist heute ein ungeheurer, in der Geschichte noch nie dagewesener Wissensschatz vorhanden, der ihnen durch neue und geeignete Verfahren der Verknüpfung und Übertragung zur Verfügung gestellt werden sollte. Jeder besitzt ein Anrecht auf eine Bildung, welche die Umwelt als Heimstatt betrachtet, um zu verhindern, dass sie eine für die Gesundheit und das Wohlergehen schädliche Entwicklung nimmt

Der Workshop kam zu folgenden Schlüssen:

1. Trotz der vielen von den Vereinten Nationen und anderen Organisationen abgegebenen Erklärungen und Zielfeststellungen und trotz bedeutender Anstrengungen in einigen Ländern ist die Bildung innerhalb der Weltbevölkerung noch außergewöhnlich ungleichmäßig verteilt, obgleich die zur Verbesserung dieser Situation benötigten Ressourcen nicht unerreichbar zu sein scheinen. Besonderen Grund zur Besorgnis im Verlauf der letzten zehn Jahre gibt die Divergenz und zunehmende Ungleichheit – eine Begleiterscheinung der Globalisierung und mit Bildungspolitik im Zusammenhang stehend – zwischen den entwickelten und den Schwellenländern einerseits und den stagnierenden Ländern andererseits, wobei letztere sich in einer Armutsfalle gefangen sehen.
2. Ein gleicher Grund zur Besorgnis angesichts der wachsenden Bedeutung der Bildung und jetzt wichtiger denn je in der Geschichte der Menschheit ist der große und oft noch zunehmende Qualitätsabstand zwischen den Lerninstituten, die von den Armen und solchen, die von den nicht Armen besucht werden. Dies entwickelt sich in einer Weise, dass oftmals differenzierte oder nach gewissen Kriterien gesonderte Bildungspfade entstehen. Höchst alarmierend ist die Tatsache, dass weltweit fast 200 Millionen Kinder und junge Menschen, die eine Grundbildung erhalten sollten, überhaupt keine Schule besuchen.
3. Heute, in Anbetracht der Globalisierung, globaler Migrationsbewegungen, der Wissensexplosion und des gleichzeitigen Entstehens einer wissensintensiven

Wirtschaft sowie vor allem der zwingenden Verpflichtung zur Bekämpfung der Armut mit allen Mitteln auf der ganzen Welt kann Bildung ein ernsthaftes Umdenken erfordern. Die nachteiligen Folgen unzulänglicher Bildungspolitik für Arme werden durch die Globalisierung verstärkt.

4. Die Globalisierung hat eine bislang ungekannte Zunahme von Migrationspopulationen hervorgerufen. Heute bilden internationale Migrationen einen wesentlichen Bestandteil der globalen Entwicklung. Migrationen können einen äußerst positiven Faktor zum gegenseitigen Verstehen und für das Vermischen von Kulturen darstellen. Bildung spielt eine wichtige Rolle bei der Integration der Kinder von Immigranten auf der ganzen Welt. Während einige der Kinder von Immigrantenfamilien in der Schule erfolgreicher sind als die Kinder einheimischer Familien, scheinen andere frühzeitig dazu bestimmt zu sein, sozial ausgegrenzt zu werden und den Problemen ausgeliefert zu sein. Eine Verringerung des Bruchs mit der jeweiligen Heimatkultur und der Muttersprache und eine Unterstützung bei der Aufrechterhaltung der Familienstabilität sind einige der Wege, auf denen Verbesserungen auf diesem Gebiet erzielt werden können.

5. Bildung sollte auf die volle Entwicklung der menschlichen Person abzielen, auf die Entfaltung der Bedeutung der Menschenwürde und auf eine Stärkung der Achtung der Menschenrechte und Grundfreiheiten. Sie sollte es allen Personen ermöglichen, effektiv an der Menschheitsfamilie teilzuhaben, und sollte das Verstehen, die Freundschaft und die Zusammenarbeit zwischen allen Völkern, ethnischen Gruppen und Religionsgemeinschaften fördern. Bildung sollte auch Kenntnisse vermitteln, kognitive Fähigkeiten höherer Art und eine zwischenmenschliche Offenheit, die erforderlich ist, um Jungen, Mädchen, Männern und Frauen zu helfen, völlig sie selbst zu werden und mit anderen zu interagieren. Sie sollte ihre Fähigkeit entwickeln zu beobachten, vernünftig zu denken, Verknüpfungen herzustellen und ethische Werte zu schaffen sowie den Sinn für Gerechtigkeit, Achtung, Toleranz und Mitgefühl für andere zu entfalten. Sie sollte die Verantwortung der Menschen betonen, die Umwelt zum Nutzen jetziger und künftiger Generationen zu schützen unter Vermeidung von Vergiftung und ökologischem Niedergang wie auch zur Förderung ihrer Erhaltung und einer nachhaltigen Entwicklung. Bildung sollte bei der Weitergabe von Kenntnissen und beim Entwickeln der Kreativität die tiefgreifenden Lehren der Vergangenheit weitergeben und die Möglichkeiten und Risiken aufzeigen, welche in der Zukunft auf die Menschheit zukommen.

6. Insbesondere im Zusammenhang mit der Globalisierung sind Achtung der kulturellen Vielfalt und Erhaltung der Elemente kultureller Identität für den Bildungsprozess wesentlich. Neue Generationen müssen ihre eigene Kultur in der Beziehung zu anderen Kulturen in einer klaren Weise verstehen, um Selbstbewusstsein zu entwickeln, wenn sie sich kulturellen Veränderungen

gegenübergestellt sehen, und friedliches Verstehen und Toleranz verstärken. Hiermit erkennen und unterstützen sie echte menschliche Werte im Rahmen einer interkulturellen Perspektive.

7. Gleichzeitig sollte Bildung darauf abgestellt sein, jenes gemeinsame Gefühl für die Menschheit zu festigen, welches zur Erhaltung des Friedens wesentlich ist. Dazu könnte sie sich auf die Allgemeingültigkeit ethischer Grundsätze und Normen stützen, die beispielsweise in den Begriffen der Menschenrechte und Menschenwürde Ausdruck gefunden haben, wie auch auf das Allumfassende von Kenntnissen, Verstandeseinsicht und Wissenschaft. Es ist somit auch erforderlich, an manchen Punkten im Bildungsprozess das neue Bild des Universums vorzustellen, welches die Wissenschaftsgemeinschaft vom Kosmos, von der Erde, vom Leben und von der Entstehung des Menschen und seiner Gesellschaften entwickelt hat.

8. Den relativistischen und nihilistischen Tendenzen mancher moderner Bewegungen, die von Benedikt XVI. und seinen Vorgängern verstärkt kritisiert wurden, stand eine begrüßenswerte und zunehmende Rückkehr ethischer, philosophischer und religiöser Fragen entgegen. Das „Wunder“, das den Ursprung der Wissenschaft in Bewegung setzte, und der Weg, den die Wissenschaft eingeschlagen hat, ist nicht geringer geworden, sondern steigerte sich mit den neuen Entdeckungen in der Physik sowie in Medizin und Biologie. Diese „neue Welt“, die vom Menschen zunehmend erforscht wird, ruft ein nur noch größeres Staunen über das Universum hervor, was dem Verstehen des Schöpfungsgeheimnisses einen neuen positiven Bedeutungshorizont eröffnen könnte. Auf diese Weise sind als Ergebnis der Wissenschaft Religion und Philosophie wieder in den Vordergrund getreten, wie es sich in der zunehmenden Aufmerksamkeit zeigt, welche ihren anerkannten Rollen bei der Suche nach Wahrheit gezollt wird. Hieraus ergibt sich das Erfordernis, bei der Errichtung einer fundierten anthropologischen Grundlage als Vorbedingung heutiger Bildung Wissenschaft, Philosophie und Religion und den jeweiligen interdisziplinären Dialog einzubeziehen.

9. Bildung beginnt im Mutterleib und mit der Geburt. Mütter, Väter und Familien benötigen in ihrer primären Bildungsrolle Hilfe im neuen globalen Zusammenhang zum Verstehen der Wichtigkeit dieser frühen Lebensstufe und sollten auf ein entsprechendes Handeln vorbereitet werden. Einer der entscheidenden Wege zu einer höheren Qualität der Bildung auf Schulebene ist die zunehmende Beteiligung von Familien und lokalen Gemeinwesen in der Lenkung ihrer Bildungsprojekte.

10. Menschliche Entwicklung beruht auf vielfältigen Parametern wie Bildung, Gesundheit und kulturellen Vorstellungen von der Familie und den jeweiligen Rollen von Männern und Frauen innerhalb der menschlichen Gesellschaft. Es bleibt jedoch festzuhalten, dass Bildung, insbesondere auf der Primärstufe, in

manchen Teilen der Welt nach wie vor außerordentlich unzureichend ist. Die „klassischen“ grundlegenden Fähigkeiten, die von einer Grundbildung erwartet werden – Lesen, Schreiben, Rechnen – reichen in einer globalisierten Welt nicht mehr aus. Sie müssen durch Kenntnisse ergänzt werden, die zu Zielen führen wie die Verbesserung, der Schutz oder die Erhaltung von Fähigkeiten zur Arbeit, das kulturelle und linguistische Erbe, die ethischen Werte, der soziale Zusammenhalt wie auch die Umwelt. In Zukunft kann diese klassische Triade sich zu einem neuen Bündel von Zielen erweitern: „Lesen, Schreiben, Mathematik, vernünftiges Denkvermögen, Verknüpfung.“

11. Das Lehren erfordert einen hohen Wissensstand seitens der Lehrer; damit Schüler durch den Vorgang des Lehrens einen Bildungsstandard erlangen können, den sie allein nicht erreichen würden. Die Rolle der Lehrer als Bildungsübermittler muss anerkannt und mit allen möglichen Mitteln unterstützt werden: beispielsweise fortlaufende Weiterbildung durch jene, die einen direkteren Zugang zu Wissen besitzen (besonders ausgebildete Wissenschaftler), Aktualisierung der beruflichen Ausbildung, angemessene Gehälter sowie Verfügbarkeit von Informationstechnologie. Um einen erfolgreichen Bildungsprozess zu ermöglichen und somit allen Mitgliedern der Gesellschaft und auch den Gemeinwesen selbst jenen Wissens- und Lernstand zu vermitteln, der einen primären Faktor für das Verleihen von Autonomie und Anspornen zur Zusammenarbeit darstellt, ist es erforderlich, hohe Qualitätsstandards innerhalb des Lehrberufs anzustreben, insbesondere auf der Ebene der höheren Bildung. Dies ist auch angesichts dessen erforderlich, dass die Sachkenntnis eines jeden Lehrers begrenzt ist. Ein Schüler sollte das, was er von einem Lehrer nicht lernt, von einem anderen lernen können und Lehrer sollten in der Lage sein, voneinander zu lernen. Um diesen dualen Prozess zu unterstützen und zu fördern, welcher Schulen, Universitäten und sonstigen Bildungseinrichtungen zugrunde liegt, müssen ihnen entsprechende nationale, internationale und private Ressourcen zur Verfügung gestellt werden, damit sie auf der ganzen Welt ihre Aufgaben wirkungsvoll erfüllen können.

12. Kommunikations- und Informationstechnologie (IT) bieten außerordentliche Möglichkeiten für die Erneuerung der Bildung. Das kommt von ihrer Fähigkeit, Menschen miteinander zu verbinden, von ihrer Möglichkeit, abgelegene Gegenden zu erreichen, von ihren abnehmenden Kosten und von dem potentiellen Umfang der Informationen, die sie übermitteln können. Auf diese Weise wird es machbar, die Kosten der Bildung für jedes Kind zu senken, auch in armen Gegenden. Jedoch schaffen IT-Geräte nicht notwendigerweise von selbst Bildung. Sie müssen von einer Zusammenschau der Vorstellungen begleitet sein, um den Dialog, die aktive Teilnahme von Lehrern, die Organisation von Wissen und das Bewusstsein für die Bedeutung der Werte zu steigern.

Déclaration sur

GLOBALISATION ET ÉDUCATION

Cette déclaration sur Globalisation et éducation résulte d'un Atelier commun tenu sur ce sujet les 16 et 17 novembre 2005 à la Casina Pio V. Sur la base d'un texte dû au Prof. Léna, au Prof. Malinvaud et à l'Evêque-Chancelier Sánchez, et en réponse à des amendements proposés par le Prof. Cabibbo, Président de la PAS, le Prof. Battro, le Prof. Gardner, le Prof. Hide, le Prof. Llach, le Prof. Mittelstrass, le Prof. Ramirez, le Prof. Ryan et le Prof. Suárez Orozco, après une discussion entre Prof. Léna, Prof. Malinvaud et le Chancelier, ce document a été formellement approuvé par l'Académie pontificale des sciences et l'Académie pontificale des sciences sociales.

Toute communauté humaine qui constamment reconsidère les buts de l'éducation possède une saine circulation d'idées et d'énergie au bénéfice de ses membres. Chaque génération devrait repenser la façon de transmettre sa culture à celle qui suit, car c'est par l'éducation que l'homme devient pleinement lui-même, conscient, libre et responsable, citoyen du monde. Puisque réfléchir à l'éducation revient à réfléchir aux générations à venir, il s'agit d'un acte de générosité, enraciné dans l'espérance.

La globalisation, convenablement aménagée, peut devenir une chance pour l'éducation et la paix, rapprochant les hommes les uns des autres et engendrant le partage de valeurs communes.

Comme dans toutes les affaires humaines, l'éducation doit d'abord reposer sur une conception de l'être humain, puisque ce sont des hommes et femmes qui la reçoivent et qui la donnent. L'éducation doit donc d'abord répondre à une question clef: que savons-nous aujourd'hui des hommes et des femmes? L'Atelier s'est donné pour but d'examiner ce que peut être l'éducation dans un monde qui ne cesse de se globaliser davantage. Ce projet doit donc reposer sur notre connaissance bio-anthropologique actuelle des humains, en dialogue avec les sciences, dans un contexte de diversité et d'interdépendance des cultures, d'universalité des valeurs religieuses, anthropologiques et éthiques. De façon croissante, ce contexte implique les technolo-

gies d'information et de communication, aussi bien que des aspects nouveaux de migrations à l'échelle planétaire.

Dans notre monde en globalisation, la question de la justice est centrale: à savoir que tous les hommes, toutes les femmes, où qu'ils soient et quelles que soient leurs conditions de vie, devraient avoir le droit et la possibilité d'une bonne éducation, comme celui d'un accès à la culture. Ceci doit se traduire par l'objectif d'une éducation de base pour tous – environ neuf années –, suivie d'une éducation secondaire et supérieure selon les ressources disponibles et les talents de chacun. Clairement, un monde globalisé implique une amélioration de l'éducation qui ne concerne pas seulement les habitants des pays en développement, mais également ceux des pays développés. Pour tous existe aujourd'hui une formidable quantité de connaissances, sans précédent dans l'histoire, qui devrait être mise à disposition à l'aide de nouvelles méthodes de synthèse et de transmission. Chacun a droit à une éducation qui considère l'environnement comme sa propre maison, le protégeant de ce qui peut être inhospitalier ou dangereux.

L'Atelier a conduit aux conclusions suivantes:

1. En dépit de nombreuses déclarations et énonciations d'objectifs, par les Nations Unies et d'autres Agences, en dépit de l'effort conduit par certains pays, l'éducation demeure extraordinairement inégale dans le monde, bien que les ressources qui en permettraient une amélioration importante ne paraissent pas inaccessibles. Sont tout particulièrement préoccupantes, dans la dernière décennie et de façon concomitante avec la globalisation et les politiques éducatives qui l'ont accompagnée, la divergence observée et les inégalités croissantes entre d'une part les pays développés et émergents, d'autre part des pays stagnants, prisonniers d'un piège de pauvreté.
2. L'éducation est aujourd'hui plus importante que jamais dans l'histoire, si bien qu'une source majeure de préoccupation est l'écart de qualité important, allant souvent croissant, entre les écoles ouvertes aux pauvres et celles où vont les plus aisés. Ceci provoque des parcours éducatifs différenciés ou ségrégatifs. Plus préoccupant encore est l'absence totale de scolarisation pour environ 200 millions d'enfants et de jeunes de par le monde.
3. Aujourd'hui, face à la globalisation, aux migrations internationales, à l'explosion des connaissances et à l'émergence concomitante d'une société basée sur la connaissance, face surtout à la pressante obligation de lutter par tous les moyens contre la pauvreté, l'éducation demande à être sérieu-

sement repensée. Pour les pauvres, la globalisation amplifie les conséquences négatives de politiques d'éducation inadéquates.

4. La globalisation a produit une augmentation sans précédent des populations migrantes, soit dans les pays d'accueil, soit au sein des pays les plus vastes. Ces migrations internationales font partie du processus de développement global. Elles peuvent être un facteur très positif de compréhension mutuelle et de mélange des cultures. L'éducation joue un rôle essentiel dans l'intégration des enfants de migrants. Dans certains cas, ceux-ci réussissent mieux à l'école que les enfants du lieu d'accueil, tandis que dans d'autres cas, les migrants paraissent destinés très tôt à des problèmes sociaux et à un rejet. L'amélioration passe par une réduction de la fracture entre les cultures et les langues, et par une aide au maintien de la stabilité familiale.

5. L'éducation doit viser au plein développement de la personne humaine, promouvoir la signification de la dignité humaine, renforcer le respect des droits de l'homme et des libertés fondamentales. Elle doit permettre à tous de participer de façon réelle au sein de la famille humaine, elle doit favoriser la compréhension, l'amitié et la coopération entre tous les peuples, les groupes ethniques et les communautés de religion. L'éducation doit aussi transmettre le savoir, les compétences de haut niveau, ainsi que la sensibilité aux relations interpersonnelles qui est requise pour aider garçons, filles, hommes, femmes à devenir pleinement eux-mêmes et à interagir avec les autres. Elle doit développer leur capacité à observer, à raisonner, à synthétiser et à créer des valeurs éthiques, à développer leur sens de la justice, du respect, de la tolérance et de la compassion. Elle doit insister sur la responsabilité de chacun dans la protection de l'environnement, au bénéfice des générations actuelles et à venir, luttant contre la pollution et la détérioration des éco-systèmes, veillant à la conservation et au développement durable. En transmettant les connaissances et en suscitant la créativité, l'éducation doit mettre en avant les profondes leçons du passé et faire percevoir les possibilités et les risques que l'humanité va rencontrer dans l'avenir.

6. Tout particulièrement dans le contexte de la globalisation, le respect de la diversité culturelle et la préservation des composantes de l'identité culturelle sont essentiels au sein du processus éducatif. Les nouvelles générations doivent clairement comprendre ce qu'est leur propre culture en relation avec les autres: ainsi, elles seront plus conscientes devant les changements culturels, promouvant compréhension pacifique et tolérance, dans une meilleure perception interculturelle des véritables valeurs humaines.

7. Simultanément, l'éducation doit construire ce sens d'appartenance à une commune humanité, si essentiel au maintien de la paix. Ceci repose sur l'universalité des principes éthiques et des normes, exprimés par exemple dans les concepts de droit de l'homme ou de dignité de la personne, aussi bien que dans l'universalité de la connaissance, de la sagesse et de la science. Il est donc nécessaire d'offrir, lors du processus éducatif, la nouvelle image de l'univers qu'a mise en évidence la communauté scientifique, s'agissant du cosmos, de la Terre, de la vie, de l'émergence des humains et de leurs sociétés.

8. Les tendances au relativisme et au nihilisme de certains mouvements modernes, que Benoît XVI et ses prédécesseurs ont critiqué avec une force croissante, se juxtaposent à un retour progressif et bienvenu des questionnements éthiques, philosophiques et religieux. *L'émerveillement* qui est à l'origine de la science, ainsi que le parcours de celle-ci, se poursuivent avec les découvertes récentes faites dans les sciences physiques et biologiques. Ce *nouveau monde*, toujours davantage exploré par l'homme, fait surgir un étonnement croissant. Celui-ci peut ouvrir un nouvel horizon de sens par lequel comprendre le mystère de la création. Ainsi, de par la science, la religion et la philosophie reviennent au premier plan, comme le montre le rôle croissant qui leur est reconnu dans leur quête de la vérité. De ce fait surgit la nécessité de prendre en compte la science, la philosophie et la religion, ainsi que leur dialogue interdisciplinaire, pour établir une solide base anthropologique en tant que condition préalable à l'éducation d'aujourd'hui.

9. L'éducation débute dès le sein maternel et à la naissance. Les mères, les pères et les familles, dans leur rôle éducatif essentiel, ont besoin d'être aidés pour comprendre – dans ce nouveau contexte global – l'importance de ces premiers stades de la vie, et pour s'y préparer. L'un des points critiques pour une éducation de qualité à l'école relève d'une participation accrue des familles et des communautés locales dans la gouvernance de leurs projets éducatifs.

10. Le développement humain dépend de multiples paramètres, tels que l'éducation, la santé, ainsi que la vision des hommes et des femmes que propose chaque culture. Pourtant, on peut affirmer que l'éducation, singulièrement au niveau primaire, demeure dramatiquement insuffisante dans certaines parties du monde. Désormais, dans un monde globalisé, les classiques compétences attendues de celle-ci – *lire, écrire, compter* – ne suffisent plus. Il faut leur en ajouter d'autres, tournées vers l'amélioration, la protec-

tion ou la préservation des aptitudes au travail, l'héritage culturel et linguistique, les valeurs éthiques, la cohésion sociale et l'environnement. A l'avenir, la triade classique pourrait se transformer en ceci: "lire, écrire, compter, raisonner, synthétiser".

11. Enseigner demande, de la part des maîtres, un niveau élevé de compétence, afin que leurs élèves acquièrent par l'instruction une éducation qu'ils n'obtiendraient pas par eux-mêmes. Le rôle des maîtres doit être reconnu et soutenu par tous les moyens possibles, tels que: accompagnement par ceux qui ont un accès direct à la connaissance (particulièrement les chercheurs), formation continue, salaires convenables, accès aux technologies modernes de communication. Pour faciliter le processus éducatif, afin que chaque membre de la société, et les communautés, atteignent ce niveau de savoir qui est un facteur essentiel d'autonomie et de coopération, il convient de viser à des standards de qualité élevée chez les maîtres, particulièrement aux niveaux secondaire et universitaire. Ceci est d'autant plus requis que, la compétence de chaque maître étant limitée, ce qu'un élève n'apprend pas de l'un d'eux peut être appris d'un autre. Pour soutenir et promouvoir ce processus de synergie, qui est à l'origine des écoles, des universités et autres institutions éducatives, des ressources nationales et internationales, publiques et privées, doivent les alimenter afin que, dans le monde entier, elles s'acquittent efficacement de leur fonction.

12. Les technologies de l'information et de la communication (IT) offrent d'extraordinaires possibilités pour un renouveau de l'éducation, grâce à leur capacités de mise en relation, leur accessibilité depuis des régions reculées, leurs coûts décroissants, et le volume considérable d'information qu'elles peuvent mettre en œuvre. Elles pourront contribuer à réduire les coûts de l'éducation pour chaque enfant, même dans les endroits les plus pauvres. Néanmoins, l'éducation ne se limite pas à l'usage de ces outils. Ils doivent être accompagnés d'une vision conceptuelle, afin de promouvoir le dialogue, la participation active des maîtres, l'organisation des savoirs et la conscience de l'importance des valeurs.

Messaggio su

GLOBALIZZAZIONE ED EDUCAZIONE

Questo Messaggio su Globalizzazione ed Educazione è stato realizzato dalla Pontificia Accademia delle Scienze e dalla Pontificia Accademia delle Scienze Sociali a conclusione del primo seminario tenuto in comune il 16-17 novembre 2005 presso la Casina Pio IV. Quindi, tale messaggio è stato ufficialmente approvato dalle stesse Accademie sulla base di un testo redatto dai Professori Léna, Malinvaud e dal Vescovo-Cancelliere Mons. Sánchez, e in risposta ai suggerimenti del Presidente della PAS, Prof. Cabibbo, e dei Professori Battro, Gardner, Hide, Llach, Mittelstrass, Ramirez, Ryan e Suárez Orozco, e dopo un'ulteriore discussione tra i Professori Léna, Malinvaud e il Cancelliere.

Una comunità umana che ripensa costantemente le finalità dell'educazione fa circolare in modo sano idee ed energie da impiegare per il bene dei suoi membri. Ogni generazione dovrebbe riesaminare i modi in cui trasmettere la propria cultura ai suoi discendenti, perché è attraverso l'educazione che l'uomo diviene pienamente ciò che è: un cittadino del mondo, consapevole, libero e responsabile. Pensare l'educazione vuol dire pensare alle future generazioni e dunque è qualcosa di radicato nella speranza e che necessita di generosità.

Una globalizzazione correttamente gestita può costituire una grande opportunità per l'educazione e per la pace, dal momento che può avvicinare gli esseri umani gli uni agli altri ed è in grado di promuovere la condivisione di valori comuni.

Come in tutte le questioni umane, l'istruzione presuppone innanzitutto un'idea di cosa sia un essere umano, poiché sono uomini e donne coloro che vengono educati ed anche coloro che educano. Dunque, l'istruzione deve innanzitutto rispondere a una domanda fondamentale, vale a dire: cosa sappiamo oggi degli uomini e delle donne?

Il Seminario ha cercato di esaminare in cosa può consistere un progetto educativo in un mondo sempre più globalizzato. Tale progetto deve essere basato sulle nostre attuali conoscenze bio-antropologiche circa gli uomini

ni e le donne, in dialogo con le scienze, nel contesto della diversità e dell'interdipendenza delle culture, e sull'universalità dei valori religiosi, antropologici ed etici, che sempre più si intrecciano con le tecnologie dell'informazione e della comunicazione, nonché con nuovi modelli di migrazione internazionale.

Nel nostro mondo globalizzato, centrale è il problema della giustizia: vale a dire che tutti gli uomini e le donne, dovunque si trovino e qualunque sia la loro condizione di vita, dovrebbero avere il diritto e la possibilità di ricevere una buona istruzione e godere di un generale accesso alla cultura. Questo vuol dire un'istruzione base – fino a nove anni – per tutti, seguita da un'istruzione secondaria e superiore sulla base delle capacità e delle risorse. Chiaramente, il mondo globalizzato implica un miglioramento dell'educazione non solo per gli abitanti del mondo in via di sviluppo, ma anche di quello sviluppato. Oggi, per tutte le persone, c'è una straordinaria abbondanza di sapere che è senza precedenti nella storia e che dovrebbe essere resa disponibile attraverso nuovi ed adeguati processi di sintesi e di comunicazione. Tutti hanno il diritto ad un'istruzione che consideri l'ambiente come la sua casa, tale da impedire che esso diventi dannoso per la salute ed il benessere.

Il Seminario è giunto alle seguenti conclusioni:

1. Malgrado le molte affermazioni e le numerose dichiarazioni di intenti, formulate dalle Nazioni Unite e da altre agenzie, e sebbene sforzi significativi siano stati compiuti in alcune nazioni, i livelli di istruzione permangono straordinariamente disuguali nella popolazione mondiale, e ciò nonostante che le risorse necessarie per il miglioramento di tale situazione non sembrino fuori dalla nostra portata. Nel corso dell'ultimo decennio uno speciale motivo di preoccupazione è stata la divergente e crescente disuguaglianza, concomitante con la globalizzazione e collegata alle politiche nel campo dell'istruzione, tra paesi sviluppati o emergenti, e paesi che si trovano in una condizione di stagnazione, ovvero che sono bloccati nella trappola della povertà.
2. Vista la crescente importanza dell'educazione, ora più che mai nella storia dell'uomo, un'analogo fonte di preoccupazione è rappresentata dal grande e spesso crescente divario tra le scuole frequentate dai poveri e dai non poveri. Ciò è tanto vero che frequentemente emergono percorsi educativi differenziati e separati. Ancora più allarmante è il fatto che in tutto il mondo circa 200 milioni di bambini e ragazzi che dovrebbero ricevere un'istruzione di base non vengono neanche iscritti a scuola.

3. Oggi, davanti alla globalizzazione, le migrazioni globali, il grande sviluppo del sapere e la concomitante affermazione di un'economia fondata nella conoscenza (*knowledge-intensive economy*), e soprattutto di fronte all'irrefutabile obbligo di combattere la povertà con tutti i mezzi possibili ovunque nel mondo, è necessario ripensare seriamente l'istruzione. Difatti, per i poveri le conseguenze negative di inadeguate politiche educative vengono amplificate dalla globalizzazione.

4. La globalizzazione ha provocato un aumento senza precedenti di popolazioni che migrano tra paesi ospitanti o all'interno di nazioni molto vaste, tanto che oggi, le migrazioni internazionali sono parte integrante dello sviluppo globale. Le migrazioni possono essere un fattore estremamente favorevole per la comprensione reciproca e per la fusione di culture, e in questo l'educazione riveste in tutto il mondo un ruolo importante per l'integrazione dei figli degli immigranti. Tuttavia, mentre alcuni bambini delle famiglie immigranti rendono a scuola meglio dei bambini delle famiglie indigene, altri sembrano essere molto presto segnati dal rifiuto sociale e da esperienze negative. In questo campo i percorsi da seguire per giungere a dei miglioramenti sono la riduzione della frattura con le culture e le lingue native, e il mantenimento della stabilità familiare.

5. L'educazione dovrebbe mirare al completo sviluppo della persona, alla promozione del significato della dignità umana, e al consolidamento del rispetto dei diritti e delle libertà fondamentali dell'uomo. Dovrebbe consentire a tutte le persone di partecipare attivamente alla grande famiglia umana e favorire la comprensione, l'amicizia, e la cooperazione tra tutte le popolazioni, i gruppi etnici e le comunità religiose. L'educazione dovrebbe anche trasmettere il sapere, le abilità cognitive superiori e la sensibilità interpersonale, tutti elementi necessari per aiutare ragazzi, ragazze, uomini e donne a divenire interamente se stessi ed a interagire con gli altri. Dovrebbe sviluppare la loro capacità di osservare, ragionare, sintetizzare e creare valori etici, e sviluppare un senso di giustizia, rispetto, tolleranza, e compassione verso gli altri. Dovrebbe rimarcare la responsabilità che tutti abbiamo nella protezione dell'ambiente a beneficio delle generazioni presenti e future, contribuendo così a combattere l'inquinamento e il deterioramento ecologico e a promuovere la conservazione e lo sviluppo sostenibile. Nel trasmettere il sapere e nell'incoraggiare la creatività, l'istruzione dovrebbe diffondere la profonda lezione del passato e comunicare le opportunità ed i rischi che l'umanità si troverà ad affrontare nel futuro.

6. In particolare nel contesto della globalizzazione, nel processo educativo sono essenziali il rispetto delle diversità culturali e la conservazione degli

elementi di identità culturale. Le nuove generazioni devono comprendere chiaramente la loro stessa cultura in relazione alle altre culture, in modo da sviluppare auto-consapevolezza quando posti di fronte a cambiamenti culturali, e per promuovere la pacifica comprensione e la tolleranza, individuando e favorendo autentici valori umani all'interno di una prospettiva interculturale.

7. Allo stesso tempo, l'istruzione dovrebbe stabilire quel comune senso di umanità che è essenziale al mantenimento della pace. Ciò può essere ottenuto attingendo all'universalità dei principi e delle norme etiche, che sono, ad esempio, espressi nei concetti di diritti umani e dignità della persona, ma anche riferendosi all'universalità del sapere, della conoscenza e della scienza. È dunque anche necessario offrire, nel corso del processo educativo, la nuova immagine dell'universo che la comunità scientifica ha proposto del cosmo, della terra, della vita, dell'origine dell'umanità e delle società umane.

8. Alle tendenze relativiste e nichiliste di alcuni movimenti moderni, che Benedetto XVI e i suoi predecessori hanno criticato con sempre maggior forza, fa riscontro la ripresa giusta e progressiva dell'appello etico, filosofico e religioso. La 'meraviglia' che ha stimolato la nascita ed il cammino della scienza non è diminuita, anzi è aumentata con le nuove scoperte delle scienze fisiche e quelle della vita. Questo 'nuovo mondo', che è stato gradualmente investigato dall'uomo, ha dato origine ad uno stupore ancora più grande di fronte all'universo, che potrebbe aprire nuovi e certi orizzonti di significato grazie ai quali comprendere il mistero della Creazione. In questo modo, a seguito dei progressi della scienza, la religione e la filosofia sono tornate d'attualità, come è dimostrato dalla crescente attenzione prestata alla loro riconosciuta funzione nella ricerca della verità. Da questo oggi scaturisce il bisogno di tener conto della scienza, della filosofia e della religione nello stabilire una solida base antropologica come preconditione dell'educazione.

9. L'educazione inizia nel ventre materno ed alla nascita. Madri, padri e famiglie nel loro ruolo educativo primario hanno bisogno di aiuto per comprendere – nel nuovo contesto globale – l'importanza di questo stadio iniziale della vita, e dovrebbero essere preparate ad agire di conseguenza. Uno dei percorsi cruciali verso una qualità superiore dell'istruzione a livello scolastico è la crescente partecipazione delle famiglie e delle comunità locali al governo dei loro progetti educativi.

10. Lo sviluppo umano dipende da molteplici parametri come l'istruzione, la salute, e le vedute culturali sulla famiglia e sui rispettivi ruoli degli uomini e delle donne nella società umana. Nondimeno si può affermare che l'istruzione-

ne, specialmente a livello elementare, rimane drammaticamente insufficiente in alcune parti del mondo. Le 'classiche' abilità base previste dall'istruzione elementare – leggere, scrivere e matematica – non sono più sufficienti in un mondo globalizzato. Devono essere integrate da abilità che conducano ad obiettivi quali il miglioramento, la difesa e la conservazione delle abilità lavorative, del patrimonio culturale e linguistico, dei valori etici, della coesione sociale, e dell'ambiente. In futuro, la classica triade potrà ampliarsi verso nuovi obiettivi: 'leggere, scrivere, matematica, ragionamento, sintesi'.

11. Da parte dei docenti l'insegnamento richiede un alto livello di conoscenze così che gli studenti, che apprendono attraverso il processo educativo, possono raggiungere uno standard di istruzione che non potrebbero ottenere da soli. Il loro ruolo di agenti dell'istruzione deve venir riconosciuto e sostenuto con ogni mezzo possibile: ad esempio, con una formazione continua impartita da coloro che hanno un accesso più diretto al sapere (in particolare studiosi e scienziati preparati), con l'aggiornamento della formazione professionale, con stipendi adeguati, e con la disponibilità di tecnologie dell'informazione. Al fine di facilitare un compiuto processo educativo, in modo da fornire ad ogni membro della società, e alle comunità stesse, quel livello di conoscenza e apprendimento che è un fattore primario nel conferire autonomia e nell'incoraggiare la cooperazione, è importante mirare ad alti standard qualitativi nella professione educativa, specialmente a livello dell'educazione superiore. Ciò è richiesto anche dal fatto che, poiché l'expertise di ogni insegnante è limitata, ciò che uno studente non apprende da un docente, lo può apprendere da un altro, ed anche gli insegnanti possono apprendere l'uno dall'altro all'interno di un contesto sinergico. Per sostenere e promuovere questo duplice processo, che è all'origine delle scuole, delle università e di altre istituzioni educative, devono essere rese disponibili adeguate risorse nazionali, internazionali e private così che, in tutto il mondo, gli insegnanti possono svolgere le loro mansioni in modo efficace.

12. La tecnologia della comunicazione e dell'informazione (IT) offre straordinarie opportunità per il rinnovamento dell'istruzione grazie alla sua capacità di connettere le persone, di favorire l'accessibilità di aree molto lontane, i suoi costi decrescenti, e il potenziale volume di informazioni che può veicolare. Sarà dunque possibile ridurre i costi dell'istruzione per ogni singolo bambino, persino in aree povere. Tuttavia, gli strumenti IT da soli non producono necessariamente istruzione. Devono essere accompagnati da un quadro concettuale che promuova il dialogo, la partecipazione attiva degli insegnanti, l'organizzazione del sapere, e una consapevolezza circa l'importanza dei valori.

Declaración sobre GLOBALIZACIÓN Y EDUCACIÓN

Esta Declaración sobre Globalización y Educación ha sido realizada por la Pontificia Academia de las Ciencias y la Pontificia Academia de las Ciencias Sociales como conclusión del primer seminario tenido en común el 16 y 17 de noviembre de 2005 en la Casina Pío IV. Así tal declaración ha sido oficialmente aprobada por parte de las mismas Academias sobre la base de un texto redactado por los Profesores Léna, Malinvaud y el Obispo-Canciller Mons. Sánchez, y en respuesta a las sugerencias del Presidente de la PAS, Prof. Cabibbo, y de los Profesores Battro, Gardner, Hide, Llach, Mittelstrass, Ramirez, Ryan e Suárez Orozco, y después de una ulterior discusión entre los Profesores Léna, Malinvaud y el Canciller.

En una comunidad humana que se replantea permanentemente sus metas educativas existe una circulación de ideas y energías que resulta beneficiosa para sus miembros. Cada generación debería reconsiderar cómo transmitir su cultura a la siguiente, ya que es a través de la educación que el ser humano alcanza su máximo potencial y se convierte en un ser consciente, libre y responsable: un ciudadano del mundo. Pensar en la educación es pensar en las generaciones futuras; por lo tanto, es algo que está arraigado en la esperanza y requiere generosidad.

La globalización, bien manejada, puede representar una oportunidad para la educación y para la paz, ya que acerca a los seres humanos y los alienta a compartir los valores comunes.

Al igual que el resto de las cuestiones humanas, la educación antes que nada presupone una idea del ser humano, porque son los hombres y las mujeres quienes reciben educación y quienes educan. Por lo tanto, la educación debe responder a una pregunta fundamental: ¿qué sabemos hoy acerca de los hombres y de las mujeres?

El Seminario tuvo como propósito examinar qué proyecto educativo podía plantearse en un mundo cada vez más globalizado. Este proyecto debe basarse en los conocimientos bioantropológicos actuales sobre hom-

bre y la mujer, en diálogo con las ciencias, dentro del contexto de la diversidad y la interdependencia de las culturas y de la universalidad de los valores religiosos, antropológicos y éticos, que cada vez se interrelacionan más con las actuales tecnologías de la comunicación y de la información y los nuevos modelos migratorios internacionales.

En nuestro mundo globalizado, el problema de la justicia es fundamental. Concretamente, todos los hombres y las mujeres, dondequiera que se encuentren y cualquiera sea su condición de vida, deben tener el derecho y la posibilidad de recibir una buena educación y de acceder sin impedimentos a la cultura, a través de una educación básica (de hasta nueve años) para todas las personas, y luego una educación secundaria y superior acorde a sus capacidades y recursos. Evidentemente, el mundo globalizado también implica una mejora de la educación, no sólo para los habitantes de los países en vías de desarrollo, sino también para los de los países desarrollados. Toda persona podría contar hoy con una inmensa riqueza de conocimientos sin precedentes en la historia, que deberían ponerse a su disposición mediante nuevos procesos de síntesis y transmisión adecuados. Todo ser humano tiene derecho a una educación que considere el medio ambiente como su casa, para así evitar que éste se transforme en algo dañino para su salud y su bienestar.

El Seminario llegó a las siguientes conclusiones:

1. A pesar de las muchas declaraciones y objetivos formulados por la Organización de las Naciones Unidas (ONU) y otros organismos, y de los importantes esfuerzos realizados por algunos países, la educación sigue siendo extraordinariamente desigual entre la población mundial, aunque da la impresión de que los recursos necesarios para mejorar esta situación no están fuera de alcance. En el curso de la última década resulta especialmente preocupante el criterio divergente y la creciente desigualdad – concomitantes con la globalización y relativo a las políticas educativas – que se observó entre los países desarrollados o los emergentes y los estancados, con estos últimos atrapados en los lazos de la pobreza.
2. Dada la importancia cada vez mayor de la educación, que ahora cobra un significado sin precedentes en la historia de la humanidad, resultan igualmente preocupantes las grandes y, a menudo, crecientes brechas en la calidad de las escuelas a las que asisten los pobres y quienes no lo son. Esta situación se da de manera tal que suelen observarse senderos educativos diferenciados o segregados. Lo que resulta más alarmante es el hecho de

que, a nivel mundial, casi doscientos millones de niños y jóvenes que deberían estar recibiendo educación primaria no se encuentran matriculados en ninguna escuela.

3. Hoy en día, en vista de la globalización, las migraciones internacionales, la explosión del conocimiento, el surgimiento conjunto de una economía basada en el desarrollo intensivo del conocimiento (*knowledge-intensive economy*), y, sobre todo, la imperiosa obligación de luchar contra la pobreza a nivel mundial con todos los medios, es posible que haya que repensar seriamente la educación. Con la globalización, aumentan las consecuencias negativas que deben sufrir los pobres a causa de políticas educativas inadecuadas.

4. La globalización ha provocado un aumento sin precedentes de las poblaciones migratorias, ya sea entre distintos países o dentro de los países más grandes. En la actualidad, las migraciones internacionales forman parte del desarrollo mundial y pueden ser un factor extremadamente positivo para la mutua comprensión y la mezcla de las culturas. La educación juega un papel importante en la integración de los hijos de los inmigrantes en todo el mundo. Sin embargo, mientras algunos niños de las familias inmigrantes tienen un mejor desempeño en las escuelas que los nativos, otros parecen estar marcados tempranamente por el rechazo y los problemas sociales. Disminuir la brecha con las culturas y las lenguas autóctonas y ayudar a mantener la estabilidad familiar son algunos de los caminos para mejorar en este aspecto.

5. La educación debería apuntar al completo desarrollo de la persona humana, inculcando el sentido de su dignidad y reforzando el respeto por los derechos humanos y las libertades fundamentales. Debería permitir a todas las personas participar en forma efectiva en la familia humana, promover la comprensión, la amistad y la colaboración entre todos los pueblos y todas las comunidades étnicas y religiosas. La educación también debería transmitir el saber, las habilidades cognoscitivas de orden superior y la sensibilidad interpersonal, es decir todo lo que se requieren para ayudar a los niños, niñas, hombres y mujeres a ser plenamente sí mismos y a interactuar con los demás. Debería desarrollar su capacidad de observar, razonar, sintetizar y crear valores éticos y cultivar el sentido de justicia, respeto, tolerancia y compasión por los otros. Debería enfatizar la responsabilidad de proteger el medio ambiente, para el beneficio de las generaciones presentes y futuras, evitando la contaminación y la degradación ecológica

y promoviendo la conservación y el desarrollo sostenido. En su transmisión de conocimientos y su fomento de la creatividad, la educación debería transmitir las grandes lecciones del pasado y las oportunidades y los riesgos que puede enfrentar la humanidad en el futuro.

6. En particular en el contexto de la globalización, el respeto por la diversidad cultural y la preservación de los elementos que hacen a la identidad cultural son especialmente fundamentales en el proceso educativo. Las nuevas generaciones deben comprender con claridad su propia cultura, en relación con las demás, para desarrollar la auto-comprensión al enfrentar los cambios culturales, y así promover una mutua comprensión pacífica y la tolerancia. De esta manera se podrán identificar y fomentar los verdaderos valores humanos dentro de una perspectiva intercultural.

7. Al mismo tiempo, la educación debería aspirar a aquel desarrollo de un sentido común de humanidad que es esencial para el mantenimiento de la paz. Para alcanzar este objetivo, es necesario basarse tanto en la universalidad de los principios y de las normas éticas, que están, por ejemplo, expresados en los conceptos de los derechos humanos y de la dignidad humana de la persona, como también en la universalidad del saber, del conocimiento, y de la ciencia. Por lo tanto, también es necesario que en algunas instancias del proceso educativo se ofrezca la nueva imagen del universo que la comunidad científica ha propuesto en lo que respecta al cosmos, el planeta tierra, la vida, la aparición de los seres humanos y de sus sociedades.

8. A las tendencias relativistas y nihilistas de algunos movimientos modernos, que Benedicto XVI y sus predecesores han criticado con creciente fuerza, responde el retorno positivo y progresivo de los interrogantes éticos, filosóficos y religiosos. La "maravilla" que ha estimulado el origen y el constante camino de las ciencias no ha disminuido, por el contrario, ha crecido con los nuevos descubrimientos de la física y de las ciencias de la vida. Este "nuevo mundo", que el hombre ha investigado siempre en modo creciente, ha dado origen a un estupor incluso mayor frente al universo, el cual podría abrir un nuevo horizonte de sentido para comprender el misterio de la Creación. Así, como consecuencia de las ciencias, la religión y la filosofía han recobrado actualidad. Esto está evidenciado por la atención cada vez mayor que se les otorga en el reconocido servicio que ellas prestan en la búsqueda de la verdad. De aquí surge la necesidad sea de tener en cuenta a las ciencias, a la filosofía y a la religión, sea al correlativo diálogo interdis-

ciplinario, para establecer una base antropológica sólida como condición previa de la educación hoy.

9. La educación comienza en el vientre materno y en el momento del nacimiento. Las madres, los padres y las familias, en su rol educativo primario, necesitan ayuda para comprender, en el nuevo contexto global, la importancia de esta temprana etapa de la vida, y estar preparados para actuar en consecuencia. Una de las formas fundamentales de mejorar la calidad de la educación a nivel escolar es permitir una mayor participación de las familias y las comunidades locales en el control de los proyectos educativos.

10. El desarrollo humano depende de múltiples parámetros, como la educación, la salud, la visión cultural de la familia y los respectivos roles del hombre y la mujer en la sociedad humana. Aún así, se puede afirmar que la educación, especialmente en el nivel primario, continúa siendo dramáticamente insuficiente en algunos lugares del mundo. Las habilidades "clásicas" que se esperan de la educación primaria (leer, escribir y matemáticas) ya no bastan en un mundo globalizado. Deben complementarse con otras habilidades orientadas a objetivos tales como mejorar, proteger o conservar la capacidad laboral, el patrimonio cultural y lingüístico, los valores éticos, la cohesión social y del medio ambiente. Para el futuro, la tríada clásica puede ampliarse hacia nuevos objetivos: "leer, escribir, matemáticas, razonamiento, síntesis".

11. La enseñanza requiere, por parte de los maestros, un elevado nivel de conocimientos de manera que los alumnos, que aprenden a través del proceso educativo, alcancen un nivel de educación que no podría obtener por sí mismos. La función de los maestros, como agentes de la educación, debe reconocerse y respaldarse con todos los medios posibles: por ejemplo, con el acompañamiento constante de quienes tienen un acceso más directo a los conocimientos (especialmente los estudiosos y científicos capacitados), con la actualización de la formación profesional, con salarios adecuados y con instrumentos de tecnología informática. Para contribuir a un cabal proceso educativo y brindar a cada integrante de la sociedad y a las comunidades mismas aquel nivel de conocimientos y enseñanza que constituye un factor primordial para otorgar autonomía y estimular la cooperación, es importante apuntar a altos estándares cualitativos en la profesión educativa, especialmente en el nivel de la educación superior. Este objetivo también es necesario para que, como la experiencia de cada educador es limitada, lo que un alumno no aprenda de un maestro lo pueda aprender de

otro, y para que los maestros puedan aprender unos de otros en un contexto de sinergia. Para respaldar y promover este proceso dual, que está en el origen mismo de las escuelas, universidades y demás instituciones educativas, deben ponerse a disposición de los educadores los recursos nacionales, internacionales y privados adecuados de manera que, en todo el mundo, puedan cumplir sus tareas de manera efectiva.

12. Las tecnologías de la comunicación y la informática ofrecen posibilidades extraordinarias para una renovación de la educación, gracias a su capacidad de conectar a las personas, su capacidad de promover el acceso a zonas remotas, a los costos cada vez menores y a la riqueza potencial de la información transmitida. El gasto educativo por niño podrá así reducirse, incluso en las zonas carenciadas. Aún así, las herramientas de tecnología informática no necesariamente alcanzan la educación por sí mismas, sino que requieren que se las acompañe con una visión conceptual, para promover el diálogo, la participación activa de los maestros, la construcción organizada de los conocimientos y la toma de conciencia acerca de la importancia de los valores.

全球化与教育

宣言

这份关于全球化与教育的宣言，产生于2005年11月16-17日在Casina Pio V举行的关于该主题的小组讨论会。它基于雷纳(Lena)教授、马林沃(Malinvaud)教授和桑切斯(Sanchez)主教、主任秘书的一篇文章，教会科学院院长卡比波(Cabibbo)教授及巴特罗(Battro)教授、卡德纳(Gardner)教授、海德(Hide)教授、拉奇(Llach)教授、密特斯特拉斯(Mittelstrass)教授、拉米莱斯(Ramirez)教授、瑞恩(Ryan)教授和苏亚雷斯·奥罗斯科(Suarez Orosco)教授对此文提出了修改意见，在与雷纳教授、马林沃教授和主任秘书讨论后，本文在教皇科学院和教皇社会科学院正式通过。

所有不断重新审视教育目的的人类群体都拥有一种良好的思想和能量的循环，使它的成员受益。每一代人都应该反思自己把文化传递给下一代的方式，因为人要做完整的自我，有意识，自由而负有责任，成为世界公民，都需要通过教育。而对教育的思考归根到底是对子孙后代的思考，这是一项无私之举、深植在希望之中。

应运而生的全球化进程，使人與人互相贴近，分享共同的价值，因而可能会成为教育与和平的一个机会。

正如所有的人类事务一样，教育也首先应基于人类的概念，接受教育者是人，传道授业者也是人。因此教育应该首先回答这样一个关键问题：我们现今对人有什么样的了解？本次讨论会确立了如下目标：检视在一个不断全球化的世界中，教育何去何从。因此这一设想应基于我们目前关于人类的生物学和人类学知识，在文化多样性与相互依存，宗教、人类学和伦理价值普遍性的背景下与科学对话。这一背景愈发牵连信息与交流技术，以及全球范围内的人口迁移这一新现象。在我们所处的全球化世界中，公正的问题是核心：要知道所有的人，不论男女，不论生在何处，不论他们的生存条件如何，都应有权、有机会获得良好的教育，正如有权获得文化一样。这一点应该理解为一个目标，就是基础教育为所有人而设——大约九年左右——此后的中等和高等教育则可根据教育资源和个人天赋而定。确切地说，全球化的世界意味着教育的改善，这种改善不仅涉及发展中国家的居民，也事关发达国家的居民。对我们每个人来说，当今世界的知识总量之巨史无前例，应该通过新的方法加以总结和传递，为每个人所用。每个人都有权获得一种把自然环境视为自己家园的教育，以防范一切对自然环境的破坏和威胁。

小组讨论会得出了以下的结论：

1. 尽管联合国和其他组织多次宣言和陈词，尽管一些国家做出了努力，在世界范围内教育仍然严重不平等，虽然一些资源可以使之有很大的改善，并非力所不能及。而发达国家和新兴国家与被贫困束缚的停滞国家间的差距和不平等不断扩大，这一点在近十年来，在全球化进程和教育政策的伴随下，成为一个首要问题。
2. 今天，教育比历史上任何一个时代都更为重要，我们难题的主要根源在于，接收穷人的学校与富人学校之间，教育质量的重大差距往往还在持续扩大。这导致了两种完全不同，彼此隔绝的教育经历。更令人担忧的是，全世界约有两亿青少年完全无法接受学校教育。
3. 今天，教育在面对全球化，面对国际人口迁移，面对知识爆炸和随之产生的知识社会，尤其是面对与贫困作全力斗争的责任时，需要严肃的审视自己。对穷人来说，全球化的后果加重了不平等的教育政策。
4. 全球化引起了迁移人口史无前例的增长，这种迁移或者在接收移民的国家，或者在土地辽阔的本国内部进行。这种迁移是全球发展过程的一部分。它有可能成为相互理解和文化交融的积极因素。移民子女要融入当地，教育起着至关重要的作用。在某些情况下，这些孩子在学业上比接纳地的本地孩子更为出色，但另一些情况下，移民似乎一开始就会遇到社会问题，感到被拒斥。要改善这种状况，需要减少文化和语言的脱节，并帮助其家庭维持稳定。
5. 教育应该以人的全面发展为目标，提升人的尊严，加强对人权和基本自由的尊重。它应该使所有的人都有机会真正参与到人类大家庭中，利于所有民族、人种、宗教群体间的理解、友谊与合作。教育同样应该传播高层次的知识和能力，传递人与人之间的敏感性，这种敏感性能够帮助男孩、女孩、男人、女人成为完整的自我，并与他人产生互动。它应该发展他们观察、推理、总结和创造伦理价值的的能力，发展他们的正义感、尊重、宽容心和同情心。它应该强调我们每个人对环境保护所负的责任，为了现世和后世的利益，与生态系统的污染和恶化作斗争，关注环境保护和可持续发展。通过传播知识，激发创造力，教育应该突出我们经历过的深刻教训，使人觉察到人类在未来将要遇到的各种可能性和风险。
6. 在全球化背景下，要特别注意对文化多样性的尊重和对构成文化身份的要素的保护，这一点是教育过程的核心。新一代人应该清楚地懂得，何为他们自己的文化，与别的文化有何种关系：这样，他们会更加清醒地意识到文化的变迁，在跨文化背景下更好地领会人的真正价值，促进温和的理解和宽容。
7. 与此同时，教育应该构建对人类整体的归属感，这对维护和平有关键作用。这一点基于伦理准则和规范的普遍性，例如人权和个人尊严的概念，但也同样基于知识、智慧和科学的普遍性。因此在教育过程中有必要提供一幅科学界阐述的世界新景象，涉及宇宙、地球、生命、人类和人类社会的出现，

8. 某些现代思潮中的相对主义和虚无主义倾向，教皇本笃十六世和他的前任们已经做了越来越强有力的批评，与之并行的，对伦理、哲学和宗教的探询逐渐地，适时地回归。科学源自一种对世界的由衷赞叹，而后，科学的历程带来了最近在物理和生物学中的新发现。这个新世界，人们对它探究地越多，惊讶也就越多。这种惊讶能开启新的意义领域，使人理解创造的奥秘。这样，通过科学，宗教与哲学重回了首要的位置，正如在它们对真理的探寻中，科学的角色越来越重要一样。由此产生了一种必要性，就是认识科学、哲学与宗教，以及三者间的跨学科对话，以便建立一个坚实的人类学基础，作为今天教育的前提条件。
9. 教育始于人的出生。父母、家庭在教育中有着至关重要的作用，他们需要得到帮助，以便理解——在全球的背景下——生命最初阶段的重要性，并作好准备。学校要有高质量的教育，关键点之一，就在于家庭和社区更多地参与教育计划的掌控。
10. 人的发展取决于几个指标，比如教育、健康、以及每种文化所提供的视界。而我们可以证实，在世界的某些地方，即使只是小学阶段的教育，也仍然是远远不够的。如今，在全球化的世界中，人们对教育所期待的传统能力：读书、写字、算术，已经不够。必须加上面向工作天分、文化和语言的继承、伦理价值、社会融合和环境的新内容。在未来，传统的提法可以换成这样：“读书、写字、算术、推理、总结”。
11. 教学活动要求教师具有很高的能力和水平，让他们的学生通过指导获得学生自己无法获得的教育。教师的地位应该以一切方式予以承认和支持，比如，直接面对知识的人（尤其是研究者）的帮助、继续教育、合适的工资、现代交流技术的学习。为了方便教学过程，使每个社会成员，社区达到一定的知识水平，从而拥有自主和合作的关键因素，应该把教师的高素质标准作为目标，特别是在中学和大学。因为每位教师的能力有限，学生从一个老师身上学不到的可以从另一个身上学到，所以这一点尤为重要。这个协同的过程是学校、大学和其他教育机构的源头，为了支持和促进这个协同的过程，国家的、国际的、公共的、私人的资源都应该提供资助，好使整个世界的教育机构有效履行自己的职能。
12. 信息和通信技术（IT）为教育的革新提供了惊人的可能性，多亏了它们的通讯能力，遥远地区间的联系更便宜，信息量更大。这有助于降低每个孩子的教育成本，乃至是在最贫穷的地方。然而，教育并不仅仅是使用这些工具而已。这些工具应该是辅助人的思想，促进教师间的对话和积极参与，帮助教师整理知识，意识到价值的重要性。

TABLES

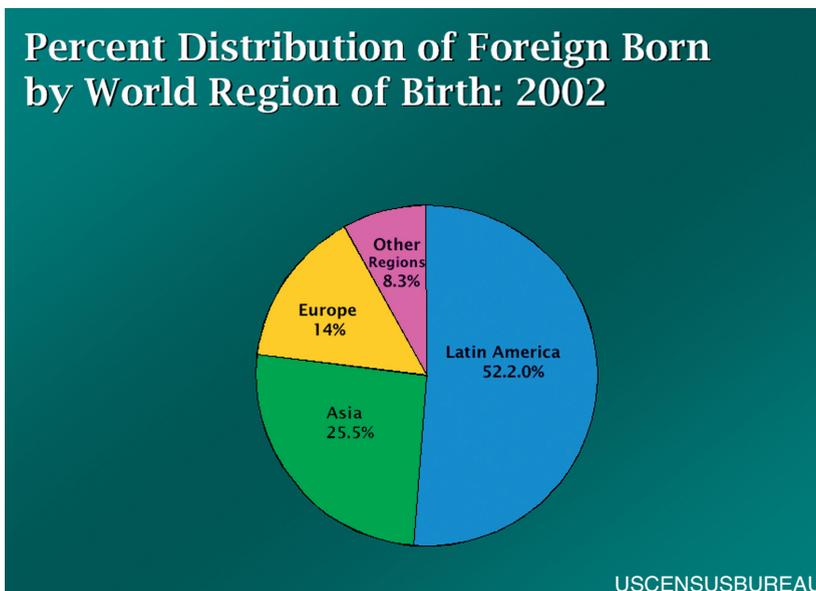


Chart 1. Source: Current Population Survey, 2002, PGP-3.

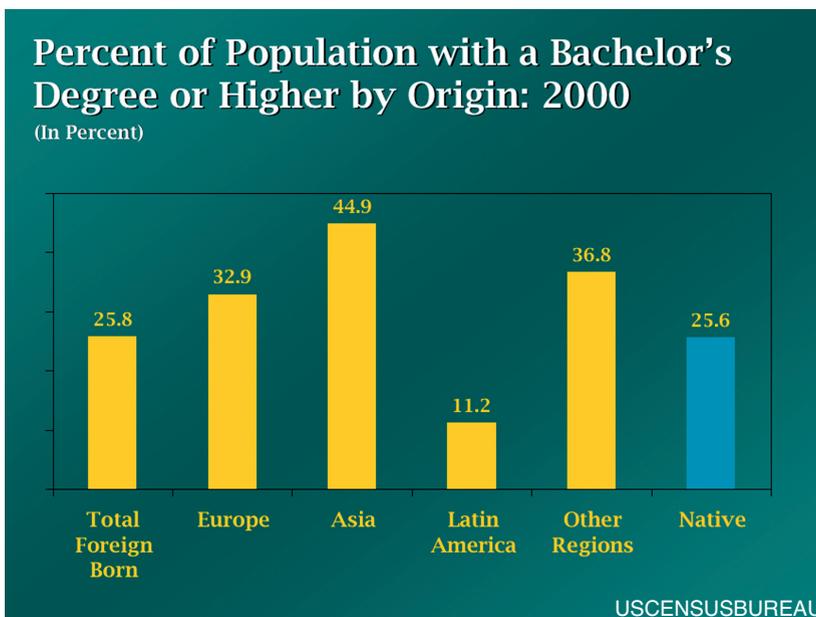


Chart 2. Source: Current Population Survey, March 2000, PGP-3.

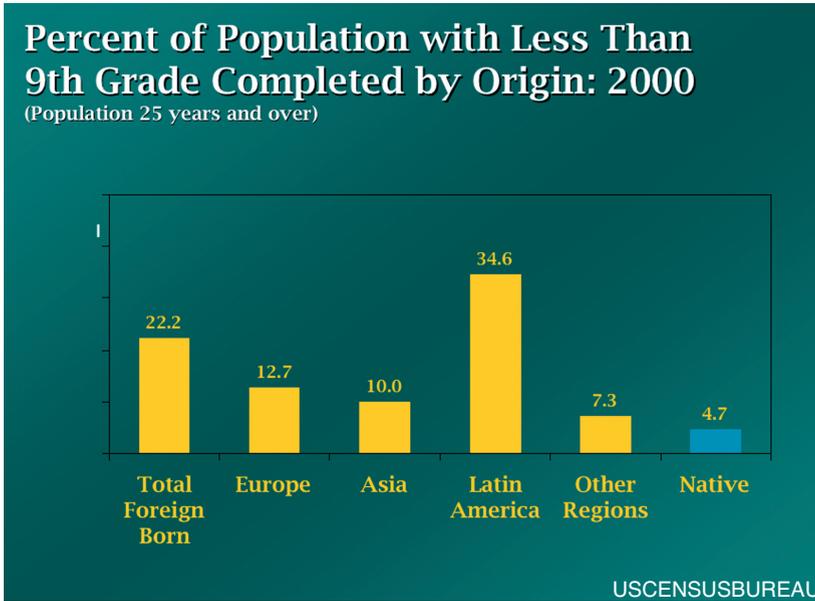


Chart 3. Source: Current Population Survey, March 2000, PGP-3.

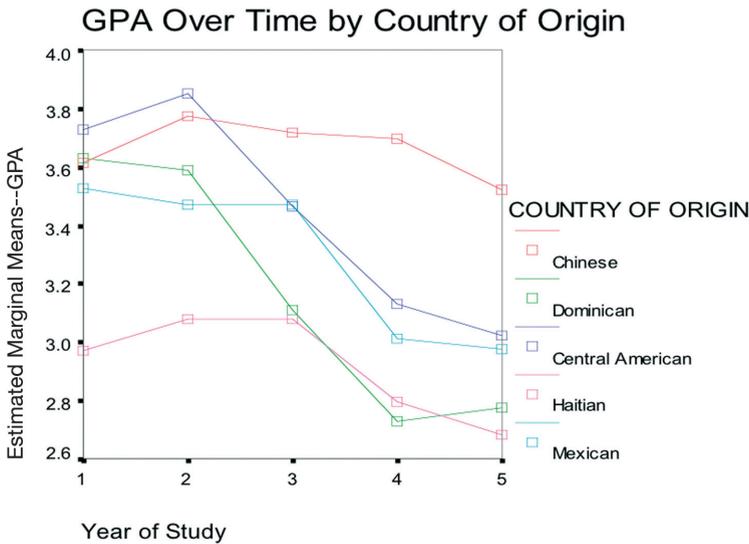


Chart 4.