Learning has ever been an essential part of human lives. Education, thought of as learning designed by adults for the young, has a history almost as old as human beings themselves. But schooling—in the sense of formal education—did not start until early in the 19th Century, when a growing number of young people began to need basic literacy and numeracy for the jobs opening up in the cities. Society-wide schooling systems started in the mid-19th Century with the enactment of the British Education Act. Over the next half century or more, they took the form they have today in the West, a form greatly influenced by the formative moment of the modern industrial era, at the heart of which was the mass production system.

It is understandable, though often forgotten, that formal education in the contemporary world was conceived at a moment in economic time, in response to a specific economic context. At an individual level, formal education was designed to prepare young people for employment in urban jobs, which were relatively stable over time, at a time when there was a very fine division of labor, each of which required what we would today see as relatively low levels of literacy. People remained in the same jobs for a long time, so most people did not require the kind of education required to learn new skills frequently. At the systems level, that kind of literacy, however, was widely considered to be essential to train manpower for the kinds of industrial jobs then becoming widely available.

Contemporary school systems in other parts of the world were largely modeled after schools in the West, the result either of colonization, often started with the kind hearts of religious missionaries, or of deliberate westernization by their own governments as a means of industrial modernization. In Asia, for example, contemporary schooling started rather late, largely at the beginning of the 20th Century, replacing traditional institutions of education, such as religious indoctrination in South Asia or Civil Examinations in East Asia. In all cases, this introduction of the Western school model started with the spread of industrialization in these Asian nations. Hence, it is again safe to say that contemporary formal education systems are products of industrialization.

After WWII, the emergence of human capital theory changed governments’ perceptions of education. These governments began to see education and schooling as an investment rather than as a form of social welfare, and the value of education has increasingly been calculated on the basis of the economic rate of return—for individuals and for entire nations—on investments in education. Education has become a major component of national “competitiveness strategies.”
Although the legislation establishing public schooling in all countries calls for universal participation in and access to the schools, screening and selection remains a basic feature of those education systems. So it should not surprise us that most education systems can be described as pyramids of student abilities, modeled after the pyramidal manpower structure typical of a manufacturing organization.

But society has changed and many of the basic assumptions on which the schools were built are no longer valid.

First, the modes of production have changed. Mass production, with its production of standardized products of indifferent quality and the division of labor into jobs each of which requires relatively little skill, has gradually given way to quality products and services, each of which is tailor-made for the clients. “Less of more”—less quantity and more variety—has led to organization of the work into smaller teams, each member of which needs much higher skills and a wider range of skills, exercising much more autonomy than was formerly the case. New products, new means of production, new technologies, new markets, new ideas, new networks, emerge every moment. Manufacturers and service providers are constantly adjusting to a constantly changing environment, so their workers must be learning every minute. “Learning to do” acquires a new meaning.

Second, individual lives have changed. Unstable jobs, changing occupations and organizations, varying expectations, precarious rewards have all made work lives less predictable. Organizational loyalty and occupational identity are fading away. Individuals, even within work lives, face unending changes and new challenges. The knowledge they have soon becomes obsolete. New technologies and skills emerge every day. Everywhere, they face demands for new ideas and innovative solutions. They encounter new social relations and new social norms every day. They are also confronted by new dilemmas in the moral and ethical fronts. Moreover, individuals are often forced to take sides in political confrontations and ideological confusions. With much less organizational binding, increasingly individuals have to manage themselves. “Learning to be” carries a very new meaning.

Third, environments for human lives have also become less predictable and perhaps less favorable. Catastrophic natural disasters, major man-made accidents, unforeseeable economic crises, mounting war potentials, organized and individualized terrorist activities, recurring old diseases and emerging new diseases, spontaneous social unrest, irresponsible party politicking, and widespread corruption have all increased in frequency and intensity. There is no sign that any of these will fade away in the foreseeable future. Under these circumstances, conscience and principles are more important than ever in community lives. Peace, justice and fairness come forth as major issues in the international arena. Driven by the global market, worldwide environmental concerns and pervasive digital networking, mutual understanding and tolerance of differences have become the essential gradients of “global citizenship”. “Learning to Live Together” perhaps assumes a position even more important than when it was raised by former president of the European Commission Jacques Delors.

Fourth, rapidly changing environments have caused new problems for societies, and have challenged all the established institutions. Among others, governments find it increasingly difficult to pretend that they are capable of solving all the major social problems. Governments are trying to adjust their roles and positions, as societies begin to rethink the meaning of democracy. Free markets are also facing challenges of their own. The market-government interplay is taking on a new
evolution. Organizations, be they financial institutions, commercial firms, industrial factorials or NGOs, all have to adjust to the new political environments and the new interplay between free markets and government regulation. Even for families and religious institutions, stability has become a luxury. Not only individuals, but all organizations, institutions and governments have to learn, or “to learn to learn”. “Learning to Know” has much wider interpretations these days.

In these circumstances, education as a social institution, has encountered fundamental challenges. But education remains more or less the same. The institution and its protocols are so strong that it is not easy for the formal education system to respond to changes in society.

Because manpower requirements and individual career paths are increasingly unpredictable, it is no longer valid to assume that education is to prepare people for specific jobs or foreseeable manpower requirements. There is an urgent need to change the discourse in education to one of learning. For example, as first steps,

- we should talk about learning leadership in schools, rather than school management;
- we should talk about learning resources and learning environments, rather than educational finance or school equipment;
- we should refer to teachers as professionals of learning, rather than the teaching force;
- we should see tests and examinations as assessments for learning, rather than assessment of learning;
- we should see technologies as a way to liberate learners, rather than a way to replace teachers; and so forth.

Workplace expectations have extended well beyond knowledge and skills. Human elements have become increasingly important in the workplace. Attitudes, values, ethics and other personal attributes have emerged as new foci of concern. In most systems, learning in such dimensions is yet to be on the agenda of government education policies.

Technologies have changed the ownership, control and transmission as well as creation of knowledge. Schools and teachers are no longer the only sources of knowledge. They have to assume new roles. Students should become active learners, teachers should become learning facilitators, technologies should help liberate learners and schools should become an environment conducive to genuine learning. These should become the prime goals of education development, replacing the current preoccupation with education reforms focused on teacher policies, school administration, examinations and accountability systems, all pursued with little direct reference to student learning.

Student learning, which should be the core concern of education, is often taken for granted as a priority, but neglected in reality. All that has happened points to the necessity of restoring the central position of learning in education. All of which confirms the foresight of “Learning to Be” in French politician and historian Edgar Faure’s report more than 40 years ago, as well as the wisdom of the four “Pillars of Learning” in Delors’ report.

Almost everywhere in the world, we can see policymakers trying to deal with these challenges, not by changing the system to meet them, but by reinforcing those elements of the old industrial education system least suited to the challenges we must now deal with. One typical aspect of this is the drive to put ever more weight on student test scores, even though it is more evident every day that the tests measure only a very small part of what is now important in student learning. No less disturbing is the tendency to think that the way to improve student learning is to exert ever more control over teachers, turning them into passive employees, as many would make students into passive receivers of information.
But, at the same time, there are grounds for optimism. Real progress in the fields of cognitive science, computer science, neuroscience and educational psychology are breaking new ground in understanding human learning. A prominent realm of Science of Learning is emerging on the horizon. These research findings should lead to new approaches to student learning, reconfirm traditional wisdom in education and unmask misconceptions about student learning that have bedeviled us for a long time.

Among the more important findings emerging from the new science of learning are the following:

1. Learning is the way humans make meaning about the world external to them.
2. Learning is the active construction of knowledge by the learner.
3. Learning requires understanding, and understanding is vital to the application of the knowledge one creates as one learns.
4. Learning takes place during doing and using; hence learning is intimately connected to experience.
5. Learning is most effective in groups; hence collaborative learning is the most effective learning.
6. Different people learn differently.

Perhaps it is time now to think more carefully about the ways in which human society is changing and the ways in which education must change with it. When we do that, I am certain that, if we do it well, we will restore learning to its rightful place as the focal point in our discussion of education.