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Speech
(*Welcome Remarks*)

By

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Third Advanced International Colloquium on
"Building the Scientific Mind"
Cairo, Egypt

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Your Excellency the Minister of Higher Education and Scientific Research, **Dr Hany Helal**

Dr Maged Osman, *Chairman of the "Information and Decision Support Center" (IDSC) of the Egyptian Cabinet,*

Dr Adli Bishay, *Executive Director of "Friends of Environment and Development Association" (FEDA)*

Dr Mohsen Tawfik, *Coordinator and facilitator of the BtSM dialogue in Egypt,*

Dr Jan Visser, *President & Sr. Researcher, Learning Development Institute,*

Excellencies,

Distinguished guests,

Ladies and Gentlemen,

It is a great pleasure for the UNESCO Regional Bureau for Science and Technology in the Arab States to join, support and welcome the "*Third Advanced International Colloquium on Building the Scientific Mind*" here in Egypt.

In the name of the Director General of UNESCO, Mr Koichiro Matsuura, allow me to express our gratitude to those eminent scientists and guests who came a long way to join us here today and to wish them every success in their forthcoming debates and discussions.

In way of introduction, The Natural Sciences Sector, at UNESCO, contributes to the organization's overall mission by using science to build peace, to eradicate poverty and to promote sustainable development. With respect to the natural sciences, the *overarching objective* is **mobilizing science knowledge and policy for sustainable development** with the following three strategic programme objectives:

- Leveraging scientific knowledge for the benefit of the environment and the management of natural resources
- Fostering policies and capacity-building in science, technology and innovation
- Contributing to disaster preparedness and mitigation

Our Regional Bureau for Science in Cairo serves to translate the foregoing objectives to concrete solutions for the benefit of our Arab Member States in the region.

Let me begin my remarks by posing the key question as to:

Why Does Scientific Thinking Matter?

1. It Promotes a Sense of Curiosity

Science promotes wonder and asking questions about the world around us. Children are naturals at this and somehow this sense of wonder gets lost as we get older. It needs to be promoted at all levels of education in all disciplines. "Science" builds on the

inspiration to ask questions… Without 'a sense of' awe and wonder, there can be no sustained investigation. Without sustained inquiry, we look on as outsiders and do not gain access to life's mysteries.

Science is not about getting the "right answer". Instead, science is about asking the right questions, about the process of inquiry. Children make exceptionally good investigators; because inquiry is natural to them …Science is an organized exercise of human curiosity.

2. It Develops a Richer Understanding of our Interconnected World

We live in an interconnected world where the physical world, the biological world and the social world all impact on one another. Decisions made in one will directly affect the others. As we study issues, we need to help students develop a rich understanding of those issues, which includes examining them from a scientific perspective.

There can be many social repercussions when a large fraction of a population does not know how to decide what is real…Unfortunately, our educational system reinforces this trap, because it is heavily invested into teaching students what to think, rather than how to think. …

Science is a process, and our ideas keep changing. … Probably the most important single feature to remember about the scientific method is that it is a means by which we can achieve progress. The scientific method is a simple yet useful and proven way of making decisions about virtually any issue.

3. It Provides a Framework for Developing Higher Level Thinking Skills

All higher education involves development and utilization of complex skills such as researching, analysis, integration of ideas, critical thinking, logic & reasoning. The scientific method can provide a framework for using these skills and moving learners

through the complete learning cycle - concrete experience, reflective observation, abstract conceptualization, and active experimentation.

As we begin the 21st century, we are working very hard in an attempt to offer some advice for policy-makers on how to do a better job of preparing students for the 21st century. **It is fair to say that we need to dramatically re-think the way we think, especially when it comes to learning**.

Our educational systems basically prepared individuals for the 19th and 20th century and they mostly continue to do so. In his excellent book "*Five Minds for the Future"*, *Howard Gardner (a professor of cognition and education at the Harvard Graduate School of Education)* describes the kinds of "**minds**" that will be at the highest premium going forward:

- **The disciplined mind**: masters at least one-way of thinking—a distinctive mode of cognition that characterizes a specific scholarly discipline, craft, or profession.
- **The synthesizing mind**: takes information from disparate sources, understands and evaluates the information objectively, and puts it together in ways that make sense to the synthesizer and also to other people. While valuable in the past, the capacity to synthesize becomes ever more crucial as information continues to mount at dizzying rates.
- **The creating mind**: building on discipline and synthesis, the creating mind breaks new ground. It puts forth new ideas, poses unfamiliar questions, conjures up fresh ways of thinking, and arrives at unexpected answers.
- **The respectful mind**: recognizing that nowadays one can no longer remain within one's shell or on one's home territory, the respectful mind notes and welcomes differences between human individuals and between human groups, tries to understand these "others", and seeks to work effectively with them. In a

world where we are all interlinked, intolerance or disrespect is no longer an option.

- **The Ethical mind**: proceeding on a level more abstract than the respectful mind, the ethical mind ponders the nature of one's work and the needs and desires of the society in which one lives. This mind conceptualizes how workers can serve purposes beyond self-interest and how citizens can work unselfishly to improve the lot of all.

Although our existing models of learning are reasonably good for developing a "disciplined" mind, they have almost nothing to say about the "synthesizing" mind, though it is arguably the most important mind for the 21st century. I don't think that any of us knows how best to cultivate the creative mind; but our current ways of thinking and teaching are excellent at quashing the creative mind.

I am sure that the deliberations and discussions of the coming few days among this wonderful group of scientists and experts will shed some light on the way forward regarding the building of scientific, disciplined, synthesizing, creating, respectful and ethical minds.

We, at UNESCO, look with great anticipation to your future recommendations to serve as the foundation for a UNESCO initiative towards building the Arab Scientific Minds.

Thank you very much for your attention and for joining us this morning.