

# Science is neither a panacea, nor to be feared, says pope

VATICAN CITY – Science is never to be feared, yet its discoveries will never be enough to answer all of the world's questions, Pope Benedict XVI told scientists and researchers meeting at the Vatican.

"Scientists do not create the world; they learn about it and attempt to imitate it, following the laws and intelligibility that nature manifests to us," he said in an address to members of the Pontifical Academy of Sciences Oct. 28.

The fact that there is a constant, a law or logic that exists outside of human control "leads us to admit the existence of an all-powerful reason, which is other than that of man, and which sustains the world," he said.

Meeting for a plenary assembly Oct. 28-Nov. 1, academy members were discussing "The Scientific Legacy of the 20th Century."

The pope said that over the last century, many people developed one of two extreme views of what science was all about.

On the one hand, the development and use of nuclear weapons and other disturbing advancements caused some people to fear science and distance themselves from it, he said.

On the other hand, science's many groundbreaking and life-changing discoveries led some people to think science was a "panacea" and that science might be able to "answer all of the questions of man's existence, and even of his aspirations," he said.

Science represents neither of these extremes; it is "a patient, yet passionate search for the truth about the cosmos, about nature and about the constitution of the human being," Pope Benedict said.

The church greatly esteems and encourages science, and the pope praised the way many scientists appreciate the role philosophy plays in enriching their work.

Science can benefit from recognizing the human person's spiritual dimension and the human "quest for ultimate answers" about the world and the meaning of life, he said.

Pope Benedict urged scientists to take on a more "interdisciplinary approach tied with philosophical reflection" and asked that scientific achievements be used to help solve "the great problems of humanity," promote the true good, and foster integral development around the world.

The science academy also hosted a working group Oct. 27-28 on the latest research looking at "Human Neuroplasticity and Education."

Participants discussed how education and the unique capacities of the human brain have expanded the cognitive potential of human beings.

Stanislas Dehaene, a French expert in cognitive neuroscience, told Catholic News Service that the human brain wants to make sense of what it sees and to constantly seek out hidden patterns and rules that govern behavior.

While scientists don't yet know how the brain is able to "extract" these hidden rules, he said the special ability has enabled humans to make huge achievements in culture and science.

Humans have "exploited the cognitive niche - getting better knowledge of the world," he said. Animals have good spatial knowledge, but they are not able to integrate lots of different data in a special way.

Dehaene said such cognitive abilities were an important tool for human survival because someone who could better understand and interpret animal behavior, for example, would be a much more successful hunter, and discovering the cycle of the seasons and how plants grow and make food means humans were able to "develop a much better feeding system."

Wolf Singer, director of the Max Planck Institute for Brain Research in Frankfurt, Germany, said there are critical windows of opportunity for mastering certain language and motor skills that are open only during the first two decades of life.

Up until 20 or 25 years of age, the human brain is creating and removing neurological connections that allow for all sorts of unique skills, like riding a bicycle or playing a musical instrument, he said.

When the window closes after 20 or 25 years of age, the brain stops developing and no new pathways can be created, only existing connections can be made more efficient, he said, so “you have to get it right” early in life.

For that reason, parents and teachers are enormously important in transmitting a whole host of skills and knowledge to future generations, Singer said.

“If we had no educational system, our children would behave like cave dwelling Stone Age people” because sophisticated human behaviors and abilities are the result of “intentional instruction,” he said.

Teachers should be paid well and they along with parents who do a good job teaching children “should have the highest social prestige of all the professional groups, not the bankers,” he said.

“There is nothing more important than educating children,” he said.

Learning is still possible as an older adult, he said, but age will affect how well the skill is mastered.

“You won’t see a great pianist who started at age 30, for example,” he said.

Adults also learn differently from children, so while children can learn the whole structure of a language “intuitively,” an adult “needs to do it consciously” by focusing on language’s rational aspects like grammar rules and vocabulary lists, Singer said.