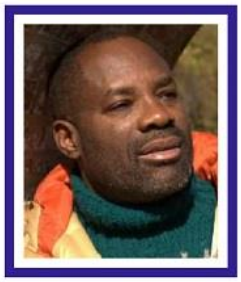

Philip Emeagwali
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My Quest for an Internet– Part 20

In this, the 20th installment of our weekly series at emeagwali.com, we present Part 2/6 of Philip Emeagwali's lecture on how creativity, innovation, and wisdom can be used to fight poverty. This speech was widely reprinted in Africa.

Out-of-the-Box Thinking

The lecture video is posted at emeagwali.com

"Africa's fate lies in the hands of Africans and the solution to poverty must come from its people."

Out of the Box Thinking – Technological problem solving using unconventional techniques and unorthodox technologies diverging into 16-dimensions to explore the laws of physics in uncommon ways that yield novel ideas and solutions.

Philip Emeagwali speaking at the University of Alberta, Edmonton, Canada.

In Emeagwali's Hands

Part 2
Out-of-the-Box Thinking
(in an In-the-Box World)
University of Alberta
Edmonton, Alberta, Canada.
September 23, 2006
PHILIP EMEAGWALI

The intellectual capital needed to produce products and services will lead to the path of poverty alleviation. Intellectual capital, defined as the collective knowledge of the people, increases productivity. The latter—by driving economic growth—alleviates poverty, always and everywhere, even in Africa. Productivity is the engine that drives global economic growth.

Those who create new knowledge are producing wealth, while those who consume it are producing poverty. If you attend a Wole Soyinka's production of Chinua Achebe's "Things Fall Apart," you consume the knowledge produced by Soyinka and Achebe as well as the actor's production, much like I consume the

knowledge and production of Bob Marley's through his songs.

We will need wisdom, that which turns too much information — or information overload — into focused power, not only to process, but also to evaluate the overwhelming amount of information available on the Internet. This wisdom will give us the competitive edge and enable us to find creative solutions.

The following story illustrates the difference between information and wisdom. Twelve hundred years ago, in the city of Baghdad, lived a genius named Al-Khwarizmi, who was one of the fathers of algebra. In fact, the word "algebra" comes from the title of his book "Al-jabr," which for centuries was the standard mathematics textbook.

Al-Khwarizmi taught in an institution of learning called the "House of Wisdom," which was the center of new ideas during Islam's golden age of science. To this day we computer scientists honor Al-Khwarizmi when we use the word "algorithm."

which is our attempt to pronounce his name.

One day, AL-Khwarizmi was riding a camel laden down with algebraic manuscripts to the holy city of Mecca. He saw three young men crying at an oasis.

"My children, why are you crying?" he enquired.

"Our father, upon his death, instructed us to divide his 17 camels as follows:

"To my oldest son I leave half of my camels, my second son shall have one-third of my camels, and my youngest son is to have one-ninth of my camels."

"What, then, is your problem?" AL-Khwarizmi asked.

"We have been to school and learned that 17 is a prime number that is divisible only by one and itself and cannot be divided by two or three or nine. Since we love our camels, we cannot divide them

exactly," they answered.

Al-Khwarizmi thought for a while and asked,

"Will it help if I offer my camel and make the total 18?"

"No, no, no," they cried.

"You are on your way to Mecca, and you need your camel."

"Go ahead, have my camel, and divide the 18 camels amongst yourselves," he said, smiling.

So the eldest took one-half of 18—or nine camels. The second took one-third of 18—or six camels. The youngest took one-ninth of 18—or two camels. After the division, one camel was left: Al-Khwarizmi's camel, as the total number of camels divided among the sons (nine plus six plus two) equaled 17.

Then Al-Khwarizmi asked,

"Now, can I have my camel back?"

These young men had information about prime numbers, but they lacked the wisdom to use the information effectively. It is the manipulation of information to accomplish seemingly impossible purposes that defines true wisdom.

Today, we have ten billion pages of information posted on the Internet—more than enough to keep us busy the rest of our lives, and new information is being added daily. More information has been created in the last 100 years than in all of the previous 100,000 years combined. We need the wisdom to sift through and convert these billions of pages into information riches.

The genius of Al-Khwarizmi was not in his mathematical wizardry or even his book Knowledge: It was in his experiential Knowledge—his big-picture right-brain thinking, creativity, innovation, and wisdom. It was his wisdom to add a camel to make the total 18 and still get his camel back.

Prime numbers are to whole numbers what the laws of physics are to physics.

Twenty years ago, I used an Al-Khwarizmi approach to solve a notoriously difficult problem in computational and mathematical physics. I added inertial force, which enabled me to reformulate the 330-year-old Newton's Second Law of motion first as 18 equations and algorithms, and then as 24 million algebraic equations.

Finally, I programmed 65,536 "electronic brains" called processors (or sub-computers) to work as one to solve those 24 million equations at a speed of 3.1 billion calculations per second.

Like Al-Khwarizmi, I derived my 18 equations through out-of-the-box thinking in an in-the-box world, adding my metaphorical camel: inertial force. In other words, I applied wisdom to known knowledge to generate intellectual capital.

Unless Africa significantly increases its intellectual capital, the continent will remain irrelevant in the 21st century and even beyond.

Africa needs innovators, producers of knowledge, and wise men and women who can discover, propose, and then implement progressive ideas.

Africa's fate lies in the hands of Africans and the solution to poverty must come from its people.

The future that lies ahead of Africa is for Africa to create, after the people have outlined their vision.

We owe it to our children to build a firm foundation to enable them go places we only dreamt.

For Africa to take center stage in today's economic world, we have to go out and compete on a global basis.

There is simply no other way to succeed.

Philip Emeagwali
The Fairmont Hotel Macdonald
Edmonton, Alberta, Canada.

Part 2/5

Out-of-the-Box Thinking

by Philip Emeagwali. The lecture video is posted at emeagwali.com

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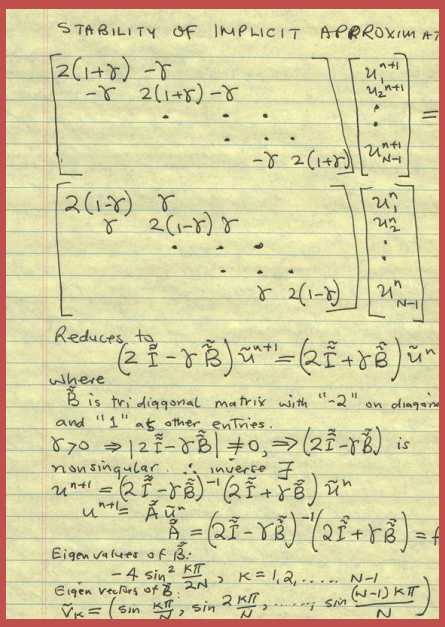
Q&A



My research notes from the frontiers of mathematical physics. My journey to the frontiers of computation and communication began from the frontiers of physics and mathematics. It continued to my theorized planet-sized internet that is a supercomputer that I named a HyperBall, instead of an internet.

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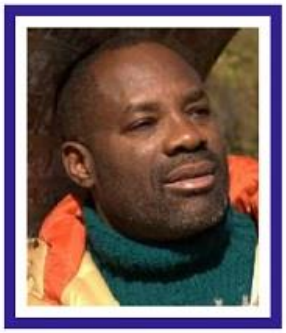
Watch the video at emeagwali.com

RESPONSES

Once again, Philip Emeagwali, drops some much needed wisdom on us…. Essential reading…. n'cho blog

Indeed Philip Emeagwali did give us great wisdom in his September 23, 2006 speech delivered at University of Alberta, entitled "Ideas, Not Money, Alleviate Poverty" – Momodou Sabally, allgambian.net/commentary_68.htm



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