

Profile
ARTICLE

Urban Planner: Dr. Thomas Culhane

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BY NATIONAL GEOGRAPHIC EDUCATION

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Thomas, who goes by T.H., is a National Geographic [Emerging Explorer](#). T.H. and his organization, [Solar C³.I.T.I.E.S.](#), work to install solar-powered water heaters on the roofs of homes and businesses in Cairo, Egypt. (Solar C³.I.T.I.E.S. is an acronym that stands for “Connecting Community Catalysts Integrating Technologies for Industrial Ecology Systems.”)

T.H. interprets his work with [urban planning](#) and [engineering](#) as being a “soldier on a different [battle front](#).” Working in slums with [sustainable technology](#) is like basic training in [geography](#), technology, and [humanity](#), he says.

EARLY WORK

T.H. grew up in Chicago, Illinois, where his mother taught in the [Head Start](#) program, which helps prepare children for school.

The [Museum of Science and Industry](#), the largest science museum in the [Western Hemisphere](#), is in Chicago, and T.H. remembers visiting it almost every weekend. “They had these great exhibits of all kinds of science,” he says.

“How [coal](#) is mined, how the [heart](#) works . . .”

Chicago also sits on the [shore](#) of [Lake Michigan](#), site of a [massive fish kill](#) in 1965. “I could smell it! We could see Gary, Indiana, from the lake, and we knew [the [pollution](#)] had to be coming from those factories. Not coincidentally, that was also right at the edge of the [black](#) community.”

T.H. studied [biology](#) and [anthropology](#) at Harvard University before earning a Ph.D. in urban planning from the University of California at Los Angeles (UCLA).

MOST EXCITING PART OF YOUR WORK

“Talking to people—all types of people—like we are all participants in the great conversation. I’m doing my part, and I’m comfortable in my part of the conversation.”

MOST DEMANDING PART OF YOUR WORK

“Being separated from my [wife and daughter]. This sort of work also involves some [financial](#) risks. . . . There are some really, really poor times.”

HOW DO YOU DEFINE GEOGRAPHY?

“Space! Space is everything. Space is [destiny](#), geography is destiny. Geography is [non-linear](#), it’s 4-D.”

Explorers have a [unique](#) relationship to geography, T.H. says, because unlike many people, explorers are not tied to a specific [workspace](#). “Explorers’ work is where we go.”

GEO-CONNECTION

As an [Ivy League](#) urban planner working with some of the world’s poorest communities, T.H. is acutely aware of different spaces and different audiences. T.H. stresses the need for developed nations to respect the [dignity](#) and [autonomy](#) of the [developing world](#).

“We all need to participate in the great conversation,” he says.

He also points to the developing world’s interest in science and technology. “I haven’t found any resistance,” he says.

Technology can become a [status symbol](#), he says, which can affect the [environment](#) of a family, a community, and even an entire [nation](#).

For instance, T.H. recalls meeting a young mother while he was working in Southeast Asia. T.H. was struck by the unusual name of her son: Armstrong. Armstrong, his mother told T.H., was named after American [astronaut Neil Armstrong](#), the first man to walk on the [moon](#). “The woman’s hopes and ambitions for her son were tied to science and technology.”

Political leaders can help expose communities and countries to sustainable technology. T.H. worked with former Nigerian President [Olusegun Obasanjo](#) after Obasanjo left office. Obasanjo equipped his own home with solar-powered water heaters, even though he could afford more [expensive](#) technology.

“The people have to see that this is quality technology, and that I use it,” T.H. remembers Obasanjo saying. Interest in solar-powered water heaters increased after Nigerians saw the heaters on Obasanjo’s roof.

SO, YOU WANT TO BE AN . . . URBAN PLANNER

Instead of specializing in a specific field of engineering or urban planning, T.H. encourages students to study the broad scope of [liberal arts](#). He emphasizes the need for wide-ranging knowledge and the ability to make connections between disciplines such as music and engineering, or anthropology and art.

He also encourages those interested in urban planning and engineering to study . . . [marketing](#).

“We need to make it sexier! We need an [Ikea](#) of solar hot water heaters. American schools are so good at marketing!”

GET INVOLVED

T.H. says “all real learning takes place outside of school. I learned in spite of school, not because of it.” He emphasizes the importance of surrounding yourself with positive, interesting resources. “*That* should be your school,” he says.

VOCABULARY

Term	Part of Speech	Definition
acute	<i>adjective</i>	sharp or intense.
ambition	<i>noun</i>	strong desire for success and recognition.
anthropology	<i>noun</i>	science of the origin, development, and culture of human beings.
astronaut	<i>noun</i>	person who takes part in space flights.
autonomy	<i>noun</i>	independence.
battle front	<i>noun</i>	site in a battle where troops directly confront the enemy.
biology	<i>noun</i>	study of living things.
black	<i>adjective</i>	person of African descent.
coal	<i>noun</i>	dark, solid fossil fuel mined from the earth.
coincidence	<i>noun</i>	incident of two or more related things happening at the same time.
destiny	<i>noun</i>	fate, or the powers that determine the pattern and outcome of events.
developing world	<i>noun</i>	nations with low per-capita income, little infrastructure, and a small middle class.
dignity	<i>noun</i>	self-respect or self-esteem.
Emerging Explorer	<i>noun</i>	an adventurer, scientist, innovator, or storyteller recognized by National Geographic for their visionary work while still early in their careers.
emphasize	<i>verb</i>	to stress or place importance on.
engineering	<i>noun</i>	the art and science of building, maintaining, moving, and demolishing structures.
environment	<i>noun</i>	conditions that surround and influence an organism or community.
equip	<i>verb</i>	to prepare or provide the right equipment.
exhibit	<i>noun</i>	display, often in a museum.
expensive	<i>adjective</i>	very costly.
explorer	<i>noun</i>	person who studies unknown areas.
financial	<i>adjective</i>	having to do with money.
fish kill	<i>noun</i>	sudden death of large numbers of fish, often because of pollution.
geography	<i>noun</i>	study of places and the relationships between people and their environments.
Head Start	<i>noun</i>	(1965-present) program of the U.S. Health and Human Services Department whose mission "promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families."
heart	<i>noun</i>	vital organ for all animals with a circulatory system, responsible for pumping blood throughout the body.
humanity	<i>noun</i>	condition of being human, including the study of art, literature, philosophy, and the sciences.
Ikea	<i>noun</i>	

interpret	<i>verb</i>	to explain or understand the meaning of something.
Ivy League	<i>noun</i>	group of prestigious colleges and universities in the northeastern United States: Yale, Harvard, Princeton, Columbia, Dartmouth, Cornell, the University of Pennsylvania, and Brown.
Lake Michigan	<i>noun</i>	(58,051 square kilometers/22,400 square miles) one of the Great Lakes of North America, bordered by the U.S. states of Illinois, Indiana, Michigan, and Wisconsin.
liberal arts	<i>noun</i>	wide-ranging course of study including the arts and social sciences.
marketing	<i>noun</i>	art and science of selling a product.
massive	<i>adjective</i>	very large or heavy.
mine	<i>verb</i>	to extract minerals from the Earth.
Moon	<i>noun</i>	Earth's only natural satellite.
museum	<i>noun</i>	space where valuable works of art, history, or science are kept for public view.
nation	<i>noun</i>	political unit made of people who share a common territory.
Neil Armstrong	<i>noun</i>	(1930-present) American astronaut and the first man to walk on the moon.
non-linear	<i>adjective</i>	not in a predictable path or series of steps.
Olusegun Obasanjo	<i>noun</i>	(1937-present) former president of Nigeria.
PhD	<i>noun</i>	(doctor of philosophy) highest degree offered by most graduate schools.
pollution	<i>noun</i>	introduction of harmful materials into the environment.
resistant	<i>adjective</i>	able to withstand the effects of a substance, material, or behavior.
science	<i>noun</i>	knowledge focused on facts based on observation, identification, description, investigation, and explanation.
shore	<i>noun</i>	coast.
slum	<i>noun</i>	area of a city that is crowded, often lacking basic services such as electricity or sewage, and inhabited by poor people.
solar	<i>adjective</i>	having to do with the sun.
specialize	<i>verb</i>	to study, work, or take an interest in one area of a larger field of ideas.
status symbol	<i>noun</i>	object or behavior that displays the owner's social or economic status.
sustainable	<i>adjective</i>	able to be continued at the same rate for a long period of time.
technology	<i>noun</i>	the science of using tools and complex machines to make human life easier or more profitable.
unique	<i>adjective</i>	one of a kind.
urban planning	<i>noun</i>	process of creating or improving the natural, built, economic, and social environments of urban areas. Also called city planning.
Western Hemisphere	<i>noun</i>	area of the Earth west of the prime meridian and east of the International Date Line.

workspace

noun

area where a job or work is performed.

For Further Exploration

Audio & Video

- National Geographic Video: Solar-Powered Water Heaters

Websites

- Solar Cities



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