

The Holographic Universe

Michael Talbot (1991) New York: HarperCollins.

Forward:

This paper is a review of *The Holographic Universe* It was written for a course in Technology and Learning at the University of Houston Clear Lake. Other texts of interest in instructional Technology are also being reviewed. Hot links to other reviews are available from the Index.

Abstract:

Michael Talbot explores an entirely new paradigm for reality. It is based on the work of two respected researchers: University of London quantum physicist David Bohm and Karl Pibram, a neurophysiologist at Stanford University, who arrived at the same conclusion independently. His conclusion that reality has holographic properties is fascinating and radical.

Review:

Is it possible that the world we experience around us is only an illusion? Are the things we believe to have substance - our bodies, trees, flowers, the earth itself - really only "projections from a level of reality so beyond our own it is literally beyond space and time?" (p. 1) In his book, *The Holographic Universe*, Michael Talbot explores the theory that our reality, our universe, "is itself a kind of giant floating hologram." (p. 46) The theory is supported by some very prominent thinkers of our time. Talbot relies on the work of University of London quantum physicist David Bohm (a protégé of Einstein's) and Karl Pibram, a neurophysiologist at Stanford University, who arrived at the same conclusion independently.

The book is divided into three sections. Part One "A Remarkable New View of Reality" offers the holographic model as an explanation of the functioning of the brain and even the functioning of the cosmos. Modern theories of how the brain stores memories, for example, do not explain how memories seem to be "distributed throughout the brain as a whole." Experiments with rats were done, where, after having been taught to run through various mazes, different portions of the rats' brains were surgically removed. No matter what portions of their brains were cut out, their memories of how to run the mazes were not eradicated. If memories had specific locations, then the rats would not be able to run the mazes after the "memory" had been cut out. In the holographic model, this is easily explained. If a piece of holographic film containing an image is cut into pieces, each piece still contains the entire image. "Every small fragment of holographic film contains all the information recorded in the whole." (p. 17) Therefore, the rats' memories must function like this holographic film. The author goes on to compare the various functions of the brain: vision, memory, recognition, and recall, to the holographic model. It seems that this theory can explain many things about the functioning of the brain that until now were a mystery.

In chapter two of Part One, "The Cosmos as Hologram," the author discusses eminent physicist David Bohm's dissatisfaction with the unexplained dual nature of subatomic particles - the fact that they behave sometimes as particles and sometimes as waves. Even quantum physics suggests an interconnectedness in all matter that can't be explained. According to Bohm, the holographic model can explain it. He says that our level of reality makes it appear as if things are separated, but in a deeper level of reality "everything in the universe is part of a continuum." (Bohm, p. 48)

In Part Two "Mind and Body," Talbot discusses the psychological aspects of the holographic model. According to Bohm, "In a universe in which all things are infinitely interconnected, all consciousnesses are also interconnected. Despite appearances, we are beings without borders. Deep down the consciousness of mankind is one." (p. 60) The

holographic theory, according to the author, can explain many psychological phenomena. Some of these include psychic phenomena, the ability to see "auras", psychosis, the power of the mind to heal using visualization techniques, effects of placebos on healing, lucid dreaming and altered states of consciousness. The power of the mind is awesome and remains untapped. The author believes that by understanding the holographic model we can learn to access these powers. "In the implicate order, as in the brain itself, imagination and reality are ultimately indistinguishable, and it should therefore come as no surprise to us that images in the mind can ultimately manifest as realities in the physical body." (p. 84)

In part three, "Space and Time," Talbot tells us there is no linear time in the implicate order. He documents case after case of people who have the ability to transport themselves back and forth in time, have out-of-body experiences (OBE's), and return from near-death (NDE's). Retrocognition and precognition are innate in all of us. It's just that somewhere along the line of all this "civilizing" we've been doing the past few thousand years, we have let the ability atrophy. Education has brought us an attitude change that leaves no room for these phenomena. A holographic understanding of time may help us retrieve these abilities.

Even though the author is dealing with the complex scientific concepts of quantum physics, the text is easily read and it is not necessary to be a scientist to understand it. In the first section of the book, the author relates an analogy that Bohm used to explain the connection between subatomic particles that appear to be separate from one another:

- Imagine a fish swimming in an aquarium. Imagine also that you have never seen a fish
- or an aquarium before and your only knowledge about them comes from two television
- cameras, one directed at the aquarium's front and the other at its side. When you look at
- the two television monitors you might mistakenly assume that the fish on the screens are
- separate entities. After all, because the cameras are set at different angles, each of the
- images will be slightly different. But as you continue to watch you will eventually realize
- there is a relationship between the two fish. When one turns, the other makes a slightly
- different but corresponding turn. When one faces the front, the other faces the side, and
- so on. If you are unaware of the full scope of the situation, you might wrongly conclude
- that the fish are instantaneously communicating with one another, but this is not the case.
- No communication is taking place because at a deeper level of reality, the reality of the
- aquarium, the two fish are actually one and the same. This, says Bohm, is precisely what
- is going on between particles such as the two photons emitted when a positronium atom
- decays. (p. 42) With analogies like this one, Talbot captures a concept visually for us. This is what makes this book extraordinary - the fact that he can convey complex physics verbally.

The last section of the book, "Space and Time," also conjures up the complexities of physics as seen in part one; however, the result is disappointing. The author chooses to relate concepts in terms of the arcane phenomenological experiences that are documented anecdotally, but without the hard scientific analogy of the first section. He doesn't deal with "space and time" scientifically, but rather more "mystically." We are asked to take a leap of faith and accept these concepts on the sheer volume of their alleged occurrences. I really wanted to see in what ways these occurrences could add to or subtract from the theory of relativity and Einstein's ideas about the space-time continuum.

Talbot tells us that the holographic theory provides a profound new way of looking at the world:

- *Our brains mathematically construct objective reality by*
- *interpreting frequencies that are ultimately projections from another*
- *dimension, a deeper order of existence that is beyond both space and*
- *time: The brain is a hologram enfolded in a holographic universe. (p.*
- *54)*

Talbot's extensive source of references and the credentials of those who support the theory are convincing. He weaves a thread of consistency that begins with ancient cultures and how their beliefs echo holographic concepts. For example, Buddhists understand the indivisible nature of the universe and reality: the part is the whole. For the Hindus, nature is an illusion and Brahman the illusion maker. The twelfth century Sufis embraced the ancient Greek philosophers' idea that "the macrocosm is the microcosm." It took the invention of the laser and the holographic process, barely a generation

ago, to give modern man a paradigm of reality that the ancients had already understood.

As educators it is helpful when attempting to design instructional materials that we understand how the brain functions. Indeed, we must understand how we perceive reality. The implications for education are profound if we accept the holographic model. It is doubtful that the scientific and educational community will begin operating from this paradigm of reality any time soon. The nature of modern science today is to deny the metaphysical. In his final chapter, Talbot calls for a basic restructuring of science, for an acceptance of psychic and spiritual phenomena. At the very least, teachers and instructional designers can design programs that leave room for the "fringe" theories so as not to stifle these innate psychic abilities that Talbot claims we all have.

Summary:

The Holographic Universe is written in remarkably easy to understand prose - especially for the non-scientist. The book's structure is simple and it flows nicely. The controversial theory is supported by many prominent thinkers. If education is about expanding the mind then this book should be required reading for all educators. Talbot makes the point in the section on near-death experiences that all those who have returned to life from near-death are convinced that our main purpose in this existence is to learn as much as we can. This book is an excellent beginning in expanding our knowledge of ourselves and our universe.

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