Twenty-First Century Learning Theories: What is New is Old

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Introduction: At a recent faculty meeting I asked a question of a colleague who had just completed a presentation on the history of our college as an innovator in adult education. Like my colleague's presentation, my question grew from an interest to understand the kinds of mission, curriculum and structural adjustments our college might have to make in light of changes in the adult education demographic we historically served. My question concerned the extent to which the founders of our college self-consciously employed a pedagogy that was mindful of adult learning theories. My colleague correctly pointed out that pedagogy concerns methods of educating children, and that andragogy is the correct term for adult education. Appropriately humbled by this distinction, I pressed on by focusing my question on the humus of assumptions from which our mission, curriculum and structure were derived.

What followed was a lively discussion that oscillated between the alpha personalities that spearheaded the college's creation and the practical issues of resources, organizational structure, curriculum, and student recruitment. Within this discussion it became clear that the originating humus was capable of supporting a variety of innovative structural and curricular models, and what became equally clear was that there was an absence of intentionality about these issues. At several crossroads situations it seemed that choices were made based on the prevailing energy of the moment.

Our faculty meeting was both a beginning and a continuation of a pruning process intended to remove the undergrowth of assumptions that makes it difficult to address the challenges and opportunities concerning attracting, supporting, and graduating adult students. Educational institutions at all levels are struggling with issues of mission, curriculum, structure, and recourses so our discussion was not unique. Still, returning to my colleague's correction of my question is instructive, for it is the lynchpin of the argument I wish to make here concerning both the opportunities a new learning ecology has on foundational theories of learning and the institutional applications of those theories. My assertion is that a new learning ecology is absorbing prevailing theories which underlay every aspect of institutional education and that this absorption creates fascinating opportunities for socially conscious learning that can potentially assist marginalized communities to produce and implement knowledge that can improve their lives.

The distinction I make between institutional and, implicitly, non-institutional education is important to the possibility of marginalized communities producing empowering knowledge. Institutional education is sanctioned by accrediting agencies whose stamp of approval is a gateway to resources ranging from student loans to governmental grants: this is the necessary evil of accountability, a society's antidote to caveat emptor. Institutional education tries to make the process of learning accountable in ways that are more useful to handling inanimate objects than in dealing with growing minds. After all, learning is messy, experimental and abhors the straight line as the best connection between two points—messy is hard to measure. She will not sit still long enough for objective analysis. Yet, as messy learns, you will come to know her by the fruit she bares.

Non-institutional education springs from the networked world in which we all live. Those who choose to "enroll" in this networked world can become world students who not only consume education, but also produce, critique, reinvent, and expand education. I will elaborate on the worldview, methods, and tools of non-institutional education below, but here I want to clarify my use of the term "learning ecology."

For me, learning ecology is a fluid amalgamation of several related ideas, and those are John Seely Brown's concept of "knowledge ecology," George Siemen's (George Siemens - Connectivism: Socializing Open Learning -- http://www.youtube.com/watch?v=rqL_lsogeNU) theory of "connectivism," a rhizomatic concept of learning, and Jenkins idea of participatory culture. Brown's work concerns the impact of the digital world on business practices. He asserts that for organizations to become effective in the digital world requires a "knowledge ecology" which can be nurtured by a "balance between spontaneity and structure." Siemens' "connectivism" depicts a learning environment that is, like Brown's "knowledge ecology," constantly forming and reforming. Siemen writes that "Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual."

Siemens' "nebulous environments" are pulled from the clouds and rooted in earth by the concept of "rhizomatic education:" where learning in the former is metaphorically in the clouds, learning for the latter is metaphorically subterranean—though "rooted," it is no less predictable than that which is ephemeral. A rhizome is defined as a "a creeping stem, usually below ground, (consisting of a series of nodes and internodes with adventitious roots) from which new aerial shoots arise." An "adventitious" root is one that develops without a pattern. "Rhizomatic education" is learner-centered and non-hierarchical:

In the rhizomatic model of learning, curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself… (Cromier, 2008)

In a jazz-like definition of rhizomatic philosophy, Deleuze and Guattari write:

The rhizome is an antigenealogy. It is a short-term memory, or antimemory. The rhizome operates by variation, expansion, conquest, capture, offshoots. Unlike the graphic arts, drawing or photography, unlike tracings, the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectible, reversible, modifiable, and has multiple entryways and exits and its own lines of flight. (1983, p.23)

An educational philosophy based on the rhizome metaphor would grow vine-like over moribund and sinking educational institutions. I argue below that such growth is current events, and potentially a very good thing for social justice education. Jenkins describes the convergence of information technologies as follows:

Rather than dealing with each technology in isolation, we would do better to take an ecological approach thinking about the interrelationship among all of these different communication technologies, the cultural communities that grow up around them, and the activities they support…. (2006).

His ecology metaphor complements the rhizome metaphor and the two together are the basis for what I am calling a learning ecology. The uses to which people have put these technologies result in a "participatory culture." Jenkins writes:

Participatory culture is emerging as the culture absorbs and responds to the explosion of new media technologies that make it possible for average consumers to archive, annotate, appropriate, and recirculate media content in powerful new ways. (2006)

This participatory culture (Jenkins on Participatory Culture, http://www.youtube.com/watch?v=2H3UzRtmX24&feature=related) also involves straight-up creative and original contributions. The rhizomatic spread of the learning ecology challenges prevailing notions of knowledge—both in terms of its production and in terms of how that knowledge is verified. In summary, my use of the term "learning ecology" describes an environment populated by assumptions, tools and actions that use communication technologies to create, verify and question meaning. In the geometric or spatial sense, it has no center. Possibility and a need to connect with others hold the learning ecology together. The need to connect with others is the need to create community and the act of creating community is transcendent because it involves varying degrees of faith, and trust. At some level community creation assumes the possibility of results that are better than, more desirable than what the solitary individual might do for herself or for himself. The transcendent act of community creation is the core of the new learning ecology, and that growing core is embracing and absorbing the struggling efforts of institutional education. The transcendent qualities I ascribe to a learning ecology are the bases for asserting the possibility of marginalized communities producing the change they need.

I turn again to my colleague's anatomically correct distinction between pedagogy and andragogy. I do so to assert that the learning ecology made possible by the way technologies are used to create a participatory culture effectively means that the textbook distinctions between the way adults learn and the way children learn are antediluvian. Knowles and others describe andragogy as forms of learning that are self-directed, learner-centered, experiential, and tied to resolving real-world problems. The participatory culture in which many if not most K-12 and college students operate has absorbed and gone beyond the self-directed, real-world problem resolution, learner centered andragogy model. For many K-12 and college students, the participatory culture they create and live in is both self-directed and community directed; it is both oriented toward solving real world problems and building communicative relationships of understanding that transcend the thinking that caused some of the real world problems in the first place; and it is both learner-centered and world centered, flowering, as it were, in learning ecologies. More directly, old-school learner centered notions are existential, and seem to yearn for a romanticized individualism that flowers only on celluloid with John

Wayne or Clint Eastwood as dying suns with few orbiting planets. By contrast, learner centered in the new learning ecology embraces both the learning interests of the individual and the learning interest of her/his learning community.

The absorption and transcendence of both pedagogy and andragogy by this learning ecology means that prevailing notions of knowledge and its verification are challenged. This is an assertion I plan to develop below, but here I need to restate my central argument and indicate how it will be developed. My assertion is that this new learning ecology is absorbing prevailing theories which underlay every aspect of institutional education and that this absorption creates fascinating opportunities for socially conscious learning that can potentially assist marginalized communities to produce and implement knowledge to improve their lives.

To develop my thesis, I start with big questions about cultural authenticity, and connections between how religion and science define reality. That discussion is titled "Worldviews and Borderlands." The remainder of my discussion refines and develops issues presented in "Worldviews and Borderlands" and is organized as follows: "A New Learning Ecology," "What Education Can Do: The Great Pyramid at Giza," "A Framework for a Digital Age Mystery School," "A Mystery School Curriculum," "Connections: Mystery School Curriculum and New Learning Ecology," and "Conclusions." My goal is to explore how a new learning ecology that shares philosophical assumptions with classical African culture can assist marginalized communities to produce and implement empowering knowledge that is consistent with the best traditions of their own history and culture. This is a social justice goal because it presents a model that all marginalized communities may wish to consider: mining their own history and culture for best traditions consistent with the challenges and opportunities of the new learning ecology.

Worldviews and Borderlands: A culture's values, institutions and artifacts are justified by the fact that they exist. Just as a human being should not have to seek permission from any external authority to live, nor should any culture have to seek permission to extend its life through the practices of its best traditions and the institutionalizing of the same. The only time this "self-evident" proposition may be challenged is when individuals or cultures consciously seek to limit the ability of other individuals or cultures to practice the same "self-evident" laws of existence. My assertions derive from a worldview that places equal priority on all people's right to do what is necessary to actualize their gifts and contributions to the forward flow of human history. From a metaphysical or spiritual perspective, individual and cultural actualization is an ontological imperative: we are not the sum of our parts because we are networked through webs of interdependence. From a scientific perspective, individual and cultural actualization is consistent with the laws of quantum physics, particularly the wave-matter duality, and the uncertainty principle—concepts that will be developed below. The spiritual and scientific processes cultures use to actualize themselves are self-authenticating.

Let me turn first to the metaphysical/spiritual explanation as to why self-authentication is a natural aspect of all cultures. The relevant aspect of spiritual literature to the point I am

making here concerns identity. Most sacred traditions and texts see identity as a dual phenomenon with graduated stages linking the two ends of the identity spectrum. The duality usually consists of a particularized view that defines the individual as egotistical, limited in its ability to see the common good, and in some instances mindlessly aggressive in getting what it thinks it has coming to it. On the other end of identity spectrum is a more mature view of the individual as connected to and somehow responsible for others, the environment and so on. Immature and adolescent cultures, much like immature and adolescent individuals assume a finite or limited supply of all forms of reality—time, space, ideas, feelings, relationships, love, land, and all the things to which we in the west have been socialized to attach a monetary value. These and other forms of reality must be possessed and/or controlled in order for a culture to feel secure.

Cultures whose actions are similar to what I have just described, identify themselves with what Ra Un Nefer Amen calls the "person," the complex of conditioned responses that many individuals and cultures assume to be a natural manifestation of what it means to be human and what it means to be civilized. Cultures who identify with the "person" are intellectually and militarily imperialistic. Such cultures have difficulty allowing other cultures the same processes of self-creation and self-authentication that it takes for itself as a given.

The other end of the identity spectrum is what Amen calls simply the "Self," by which he means that part of the human spirit in which the God characteristics of omnipresence, omniscience, and omnipotence reside. These God characteristics are seed-like, and require graduated and systematic forms of cultivation—what many traditional societies label initiation—in order to manifest. Individuals and cultures that take the "Self" as their identity have a wealth consciousness in which reality is an abundant complex of infinite potential: there is no shortage of time, space, ideas, feelings, relationships, love, money, land, and all the things to which we in the west have been socialized to attach a monetary value. When the "Self" is taken as one's identity, cooperation replaces conflict and the need to control. Cultures that take the "Self" as their identity are not intellectually or militarily imperialistic.

In labeling the duality of identity as "person" and "Self" respectively, Amen has not created any thing new. Rather, he has placed a universal aspect of the dual nature of human identity into an African worldview, something that any number of other thinkers has done. Deepak Chopra writes about this duality from the perspective of Hindu culture and labels what Amen calls the "person" as "object referral," and labels what Amen calls "Self" as "self-referral." Chopra's terms have meanings similar to Amen's. In various denominations of Christianity, humankind is "born in sin"—a reference to the "person"—and therefore in need of salvation. Salvation requires identifying one's life with Jesus Christ—the "Self." In Islam the individual is born into the world sinless, and the individual's purpose in life is pre-determined by Allah. Yet, the individual does have free will and can choose to follow the will of Allah or not. From this perspective, free will can be seen as determining whether to follow the will of Allah ("Self") or the whims of passion ("person"). In the secular realm, the duality concerning human identity is often discussed in psychological terms: the "person" is the ego and the "Self" is the superego or

collective unconsciousness. This superego is sometimes used to mean national or community spirit, civic responsibility and so on. To reiterate the point I am making here, the dual nature of human identity is a universal concept that is given different names by different systems. These names, much like synonymous maps printed in different languages, all lead to the same two places.

Let me turn now to my discussion of quantum physics as an explanatory model for individual and cultural self-authentication. Quantum physics is useful for my purposes because its claims to truth are based on a worldview that sees reality more as a negotiation between the observer and that which is being observed, than does the Newtonian worldview that sees a static-outer world whose laws are fixed. Before providing a descriptive definition of quantum physics, it is worth noting here that in matters of how education is structured and a broad range of other socializing activities ostensibly intended to move individuals and cultures towards actualization, Newtonian physics is the operative worldview. Though quantum physics has contributed almost a century of experiments and observations about the physical world, that science has not been made operational in terms of how western cultures carry out some of their most important civilizing activities. I develop some of the consequences of this fact below.

But first here is a descriptive definition of quantum physics. There are five main ideas that frame quantum physics:

1. Energy is not continuous, but comes in small discrete units.
2. All energy/matter behave both like particles and like waves
3. The movement of these particles is inherently random.
4. It is physically impossible to know both the position and the momentum of a particle at the same time. The more precisely one is known, the less precise the measurement of the other is.
5. The atomic world is nothing like the world we live in. ("What is Quantum Physics?")

There are other descriptive definitions, but for my purposes as enumerated above, this definition is sufficient.

There are three aspects of this definition useful to my argument: (1) quantum physics contains two different dualities—one is the dual behavior of energy/matter as waves and as particles; and the second duality concerns the "impossibility" of measuring both the position and the momentum of particles; (2) the idea that quanta movement is inherently random; and (3) the assertion that the atomic world is "nothing like the world we live in." The particle/wave duality reflects the complimentary relationship between the "person" and the "Self." Particles correspond to the limited aspects of what it means to be human (person) in that they exist in a specific location and can never be in more than one place at one time. Additionally, in order to travel to a different place in space, a particle must move to it under the laws of kinematics, acceleration, velocity and so on. In effect, the particle behaves like the physical body and in the context of this discussion, the "person" is a metaphor for both the necessity and the limitations of the physical body: for it is the vehicle to carry the "Self" to its various experiences.

By contrast, the wave behaves like the "Self" in that it can not be conceptualized as a finite entity, neither can its energy be "considered to exist in a single place since a wave by definition varies in both displacement and in time." Additionally, in an area of space waves can propagate until they exist in all locations and at all times. This is consistent with the omnipresence dimension of the "Self."

The point I make here in terms of similarities between the two dualities—"person" and the "Self" on the one hand, and the particle and the wave on the other—is that descriptively, both sets of dualities behave similarly. In addition to this similarity providing an example of the unity within diversity which characterizes all levels of existence, the way scientists respond to these dualities (psychiatrists on the one hand and physicists on the other) indicates an ability to describe phenomenon in great detail without having a great deal of understanding as to why things function as they do. For now, this lack can be explained by reference to the fact that we in the west have been socialized to value results more so than we have been socialized to value experience or process. This tendency to put value in things is what makes the satisfaction gained from the accumulation of things so fleeting.

Now I want to turn this part of my discussion to position and momentum as measurements in quantum physics. The accepted point of view is that you can not simultaneously know both of these phenomenon, and that the more you know about one the less you know about the other. It would appear that this analysis supports the "inherently random movement of these particles." Random is defined as "without definite aim, direction, rule, or method." This definition assumes the absence of planned activity intended to reach a measurable or concrete goal. By extension, the absence of "aim, direction, rule or method" denotes an absence of purpose or meaning. My extrapolations of the denotative meaning of "random" are meant to emphasize the result-oriented dimension of Newtonian worldview that operationally obtains in fundamental ways our culture makes and enforces meaning—and, apparently, Newtonian physics oozes into the descriptive definition of quantum physics.

From a worldview that takes the "Self" as its identity, the random behavior of particles would be explained as a function of life's purpose: to experience the unity within diversity. The world is replete with an endless wardrobe and matter simply wishes to experience the wardrobe by trying on outfits from the "Infinity Collection." In this sense, experience is both an end in-itself and a continuum. It is the uncertainty principle and, from all that I have been able to discover, matter is cool with uncertainty and extends an open invitation for humanity to "come on down" and be part of life's adventure.

What we know is an interpretation based on the identity we take as our own. The characteristics of the two identities discussed above (the person and the Self) as well as their relationship to the particle/wave duality have been enumerated earlier. In the next section I discuss African epistemology as a complimentary duality of historical understanding and intuition. To reiterate, the measurement of both position and momentum is a function of identity.

So, do particles think? In a matter of speaking, yes they do. They chose their behavior from an infinite set of expressions derived from a finite set of patterns or laws. They make these choices in order to experience the unity within diversity. Seeking to replicate in the laboratory all the behaviors of sub-atomic particles in nature is rather like trying to reduce the human personality to a set of known and finite expressions. Unfortunately, this process is carried out daily—almost execution style—and is given the label "education." Indeed, a major cause of conflict in the world derives from educational systems that orient us away from the highest and most fundamental dimensions of humanity—this is of course our limitless spirits.

As described above, individual and cultural identity determines the meanings we attach to experience, how it is we define and handle differences, and how we project the possible. With the preceding in mind, I develop below how a new learning ecology can assist marginalized communities to create and implement their view of reality.

A New Learning Ecology: The ways in which the new learning ecology challenges prevailing institutional education in American, and similarities between the new learning ecology and the worldview of classical African civilizations are the focus of this section. In my discussion, the term "holistic worldview" refers to the ontology, epistemology, and the concepts of space and time for both classical African Civilizations and the New Learning Ecology. Conversely, the term "IE worldview" refers to the ontology, epistemology, and the concepts of space and time as used in institutional education—those prevailing assumptions of American Education. The table below defines the terms of comparison.

	Ontology	**Epistemology**	**Space**	**Time**
Classical African Civilization Worldview	Individual defined in the context of community	Knowing is a combination of historical understanding and intuition	Hierarchical value or function	The order in which reality manifests itself—assumes a connection between the person/community and time
Prevailing American Educational Assumptions (Institutional Education)	Individual rights take precedent over the community	Knowing validated primarily through left-brain directed means (objectivism, behaviorism, etc.)	Appearances to be dominated	Linear progression of events that proceed almost independently of reflection
New Learning Ecology	Individual defined in the context of community	Knowing as a combination of historical understanding and intuition	Hierarchical value or function	The order in which reality manifests itself—assumes a connection between the person/community and time

As indicated in the table above, the holistic worldview assigns positive value to relationships among people, cultures, nature, and nations. The holistic worldview ontology can be conceptualized in several ways. From grammatical standpoint, it can be

thought of as the correlative conjunction "both / and"; from a musical standpoint it can be thought of as an orchestra that can read and play from the sheet music, use the sheet music as an improvisational point of departure, or proceed from some internal musical utterance emanating from one or more orchestra members; as science the holistic ontology is quantum physics—the "undivided Whole in a perpetual state of dynamic flux"; from the perspective of popular culture, it is "one nation under a grove, getting down for the funk of it"; and from a spiritual perspective, the holistic ontology is an amalgam of various wisdom traditions which define humanity as fully integrated into the known and the unknown world.

So in the holistic ontology everything is connected. The distance between the observer and the observed is imagined or, more likely, it is learned. And it is these two factors—universal connectivity and the illusion of personal isolation—that suggest life's purpose in a holistic ontology and that purpose is to discover the unity within diversity. Life's purpose can be variously pursued along single tracks, multiple parallel or colliding tracks—any track or combination or tracks is fine as long as the process does not consciously seek to limit the pursuit of others. Indeed, it is the unpredictable path of life's pursuits that provide the texture and flavor of living itself.

The IE worldview stands outside reality and sees it as a force to be conquered and can be conceptualized in these ways: from a grammatical standpoint, the ontology of the IE worldview can be thought of in terms of the correlative conjunction "either / or"; from a musical standpoint it can be thought of as an orchestra that cannot lift its head or heart from the sheet music in front of it; as science the IE ontology is empirical in its outlook and behaviorist in its methods—there is no a-priori knowledge and Ivan Pavlov's "conditioned-response" experiments on dogs suggests the forms of teaching and training that animate "No Child Left Behind"; and from a spiritual perspective the IE ontology asserts and affirms a God who knows his place and can therefore be brought into the discussion to justify what the "rational" mind has determined as necessary. This is why the IE ontology God is a partisan in war, sports, and all range of conflict.

In summary, the one-world ontology can be understood as a both/and grammatical construction, while the institutional education ontology can be understood as an either/or grammatical construction. The meanings of each ontology have epistemological consequences on information production, consumption and evaluation. Before discussing those, I will continue my comparison between the holistic and IE worldviews by looking at epistemology.

The holistic epistemology explores reality's veracity through historical understanding and intuition. As used here, historical understanding assumes that all cultures have aspects of their history about which they are proud, and they have aspects of their history about which they are not proud. Prideful history is the stuff of national holidays, statues, museums, parks, public and sacred places. Historical understanding means that individuals and cultures make life choices based on the best traditions of their history and culture. Such choices are meaningfully made when individuals and cultures know and understand those aspects of their history and culture that have underdeveloped

themselves, their culture, and, more broadly, have underdeveloped humanity. Historical understanding can be a basis for optimism—not in a Pollyanna sense, but in a systematic sense relative to the way history can be studied and interpreted.

Optimism comes from seeing the results of choices cultures make to either govern themselves by their best traditions, or by their worse traditions. When cultures govern themselves based on their best traditions, productive seeds are planted, nurtured and in time flower. When cultures govern themselves by their worse traditions, weapons replace ploughshares, people suffer, and fear is the only seed to take root. Thus, optimism results from knowing the consequences of choices.

The intuition aspect of a holistic epistemology is tied both to historical understanding and to an ontology that sees the world as multiple expressions of a single phenomenon. Observers have noted that peak performance in any area—science, music, math, drama, sports, etc.—is characterized by non-thinking, a mode of being wherein the performer becomes what he or she is doing. Peak performance requires losing oneself, transcending the ego and being guided by patterns for which there may be no objective precedent. In such instances—which are an ideal educational outcome—intuition is the guide. Intuition may be naked—in which case she is a talent (a facility with math, words, science, sports, etc., for which there is no known reason)—but she can also be clothed. Nude intuition is clothed through historical study and understanding. For it is there that she meets the beautiful apparel of best traditions, role models, and the like. In the framework of my earlier discussion, intuition is a rhizome, it is that part of the learning ecology that establishes its on patterns and precedents and does so through informed improvisation.

By contrast, the epistemology of institutional education is rooted in the assumptions and techniques of objectivism/behaviorism, which assume that "Learning happens when a correct response is demonstrated following the presentation of a specific environmental stimulus" ("Instructional Design Knowledge Base"). This is the philosophical foundation for the "No Child Left Behind" sledgehammer that through high stakes testing encourages the systematic and documented bludgeoning of our children's' collective imaginations. From an epistemological perspective, the institutional education epistemology dispassionately herds creativity into entropic enclosures to deny its productive and explanatory dimensions. It then inserts the needle of objectivity to drain passion from meaning so that the latter becomes a cold result devoid of life. This happens because the institutional epistemology puts the triumphant individual on his shoulders to assure separation from his community.

Ideas about space and time are shaped by the way questions about ontology and epistemology are answered. In the holistic ontology/epistemology, space is hierarchical value or function and time is the order in which reality manifests or shows itself (Amen). Both definitions assume a reality prior to, or at the very least concomitant with humanity. This prior reality is not random or accidental, and this assertion can be tied to faith or science. For faith adherents, the non-random and non-accidental nature of reality is the act of a supreme intelligence. For some scientists reality exists when interactions among its components can be routinely reproduced through a scientific method.

Space defined as hierarchical value or function is consistent with the holistic ontology. Specifically this definition of space affirms ideas and activities that embrace individuals defining themselves in the context of community. In this sense, space that celebrates individualism in the context of community is sacred. The value and function of space is thus hierarchically defined in terms of its affirmation to this core dimension of being—that the individual female or male finds her or his fullest individual expression in the context of community. Historical understanding and intuition, the cornerstones of the holistic ontology, values those spaces (both between one's ears and in the "material" world) that venerate best traditions as a way for the individual to discover his or her unique and individual talents in the context of community.

Time in the holistic ontology is defined as the order in which reality manifests itself. Time is order, not only in its gross routines of day passing into night and night to day, but also in its more subtle dimensions. It is a time similar to that found in Ecclesiastes, Chapter 3, verse one: "To every thing there is a season, and a time to every purpose under the heaven". And the passage continues by enumerating a range of paired particulars—a time to be born, a time to die; a time to sow, a time to reap, and so on. Time from an holistic ontology perspective infuses the human spirit in time so that the time to sow or reap is not a single path to a static line that every one crosses in the same manner; rather, time is a conversation between the requirements of life (objective and subjective) and the unfolding individual in the context of her or his community. So this is an authentic notion of time because it is tied to patterns and precedents that embrace all facets of reality.

This is in contrast to the institutional education approach that embraces obvious objective measures of time—days, weeks, months, years, etc.—as the primary measure of time. The clock is king in this world and assessments are measured by success achieved within a given amount of time. Unlike the situation in holistic ontology, time is not available for conversations about life's requirements and the unfolding of time to develop individual wherewithal within the context of community. In general, time in IE ontology is a weapon that educationally abuses children. Time in the IE ontology has no conscience and is therefore prone to blame the victim—"If Johnnie can't read, then shame on Johnny. God knows we've tried."

What Education Can Do: The Great Pyramid at Giza: Up to this point I have not talked explicitly about classical African Civilizations. So I will turn the discussion in that direction by exploring the location and construction of the Great Pyramid at Giza (GPG) as a way to deduce both the structure's meaning, and how that meaning prefigures educational possibilities within the new learning ecology. In this sense, GPG is seen as a concrete manifestation of a holistic worldview that replicates and nourishes itself through a holistic approach to education. In connecting the worldview that animates GPG to the new learning ecology my assertion—perhaps hope—is that the new learning ecology might produce humanistic outcomes that are as remarkable and enduring as the Great Pyramid at Giza.

The Great Pyramid at Giza has been described as "a tomb or monument for a Pharaoh, an astronomical observatory, a place for elaborate Egyptian rituals, a giant sundial, a grain storage structure, a prophetic monument, a water irrigation system, a repository for ancient knowledge, the Egyptian Book of the Dead immortalized in stone, a communication device to other worlds or realms, etc. The list goes on. ("Introduction and Overview of the Great Pyramid at Giza."). The unremarkable idea asserted by some that the Great Pyramid at Giza was constructed to preserve, embellish and extend the Kemetic worldview is the theory that resonates with me.

This idea resonates with me because all cultures devote time, space, and resources to build institutions that support their view of the world. As previously discussed, the holistic worldview (which is synonymous with the CAC worldview) places a premium on the individual finding herself or himself in the context of community, truth being verified through historical study and initiation, time as the order in which reality manifests itself, and space as hierarchical value or function. If we accept the generalization that all cultures build institutions consistent with their view of themselves and of the world, then the ideas that structure the CAC worldview would have to be dominant forces in the creation of the Great Pyramid at Giza. Before I develop my assertion concerning the meaning of the Great Pyramid at Giza, a description of some of the more remarkable aspects of its construction is useful to explaining why the meaning of the Great Pyramid at Giza is so contested.

First, location: composed of more than 2.5 million stones, with weights varying from 2 to 70 tons, a geographic site capable of holding the pyramid's weight had to be chosen. Although unable to agree on the geological process used by the ancient Egyptians in selecting a site, scholars do agree that the site had to be carefully chosen. The site of the Pyramid in Giza covers some thirteen acres and it is leveled so that its height varies less than 1/2 inch over its thirteen acres. According to some scholars, this level of precision is difficult for today's engineers to match. The pyramid itself is so huge that it can be seen from the moon.

Like much about the Great Pyramid at Giza, the meanings attached to the selection of the Giza site do not enjoy universal support. Still, for my purposes, the following observation is useful to linking the location with meanings associated with Giza.

The Pyramid is located at the exact center of the Earth's landmass. That is, its East-West axis corresponds to the longest land parallel across the Earth, passing through Africa, Asia, and America. Similarly, the longest land meridian on Earth, through Asia, Africa, Europe, and Antarctica, also passes right through the Pyramid. Since the Earth has enough land area to provide 3 billion possible building sites for the Pyramid, the odds of it's having been built where it is are 1 in 3 billion. ("What are the Facts About the Great Pyramid of Giza.")

Once the location was selected and prepared, the way the Great Pyramid was situated or laid out on that location speaks to us about its meanings. Writing for the British Broadcasting Company, Dr. Ian Shaw notes:

*It is clear that the Egyptians were using their knowledge of the stars to assist them in their architectural projects from the beginning of the pharaonic period (c.3100-332 BC), since the ceremony of pedj shes ('stretching the cord'), reliant on astronomical knowledge, is first attested on a granite block of the reign of the Second-Dynasty king Khasekhemwy (c.2650 BC). (*Shaw, "Building the Great Pyramid").

While there is no consensus on this point, it does appear that the ancient Egyptians did use astrological reckonings to determine the directional orientation of the Great Pyramid of Giza: "The pyramid is aligned with the four points of the compass. This means that its four sides point toward true East, West, North, and South"("The Power Latent in Man, The Great Pyramid at Giza"). Many Egyptologists are quick to assert that the ancient Egyptians had no tools to make such precise directional orientations, and these same Egyptologist fall silent in providing an explanation as to how they made such calculations.

The construction of the Great Pyramid at Giza is as contested as its purpose. Ramps, pulleys, wood sleds pulled across water-moistened soil are among the proposed explanations of how the two to 70 ton blocks of limestone and granite were moved into position, and assembled to reach a height of 487 feet (approximately 40 stories as in a modern building). There are also differences of opinion as to how the 2.5 million or so stones were "manufactured" in the first place: thus, a unique school of thought asserts that the stones were not cut at all; rather, they were poured like cement. Casing stones were used to cover the outer stones that composed the Great Pyramid at Giza. These casing stones—which were highly polished—were affixed to the limestone with great precision:
The joints between adjacent blocks fit together with optical precision and less than a fiftieth of an inch separates the blocks. The cement that was used is extremely fine and strong and defies chemical analysis ("Introduction and Overview of the Great Pyramid at Giza.")*.)*

It is worth noting that the casing stones weighed "ten tones or more," making the precision of their placement even more remarkable.

So where are we in connecting the "wisdom of the ancients" to contemporary possibilities in the new learning ecology? An aside is useful—this from a 12 July 2001 article titled "Lessons from Egypt's Lost City of the Pyramids Will Be Revealed in the Context of the Future of Communal Habitation." Dr. Mark Lehner of Harvard's Semitic (sic) museum says:

This 4,600-year-old city is one of the oldest planned urban centers in the world. It includes Egypt's oldest known hypostyle hall, city blocks and paved streets over an area the size of four football fields. This was a place of production for copper, bread, meat and other industries that supported the construction of architecture that remained the largest in the world, the great Giza Pyramids, until the turn of the 20th century A.D. I will contrast this centrally-designed, orthogonally-planned urban center and the geometric precision of the Great Pyramid cemeteries that it supported with the self-organized villages from which it sprang. And I will compare this urban evolution of the

Third Millennium B.C. to the move from high modernism to post modern curves, communities and ecology in the urban development of the Third Millennium A.D." ("Urban Planning"*)*

Lehner's observations are paired with Jon Jerde presentation, "The Future of Communal Habitation." Jerde is interested in "the change in cities as we know them and how they will exist in the future given the virtual-visual shift, the new energy-ecology information, and the density issue" (ibid, Business Wire). The Lehner – Jerde presentations were part of the "Paradox" series which explores the interplay between physical and cyber reality.

The Lehner-Jorde discussion is a gateway to understand the relevance of the ancients to contemporary possibility, but what does it tell us about the meanings of the Great Pyramid at Giza and the educational possibilities of the new learning ecology? First it tells us that when we can unearth the lessons of history, said history becomes contemporary. And this is an important lesson about which links to the power of marginalized people truly knowing their history. Secondly, the Lehner-Jerde discussion is a pathway to the holistic worldview that animated the location and construction of the pyramids.

From the foregoing discussion we can deduce that the absence of agreement about the purpose and method of the Giza Pyramid's construction attest to its material and spiritual sophistication. More directly, experts who do not know how or why it was created, are stymied by its enduring engineering and architectural precision, and are puzzled as to why a culture would construct such a structure in the first place. For my purposes, the significance of the Great Pyramid of Giza and its accompanying structures lies in the educational system that made it possible in the first place.

A buffet of sources nourish the idea that the ancients used "Mystery Schools" as systems of initiation to educate the populace—and while I am aware of class and gender issues sometimes raised by scholars as to who got educated in ancient Egypt, I am going to save that discussion for another time and focus here solely on the methods of education / initiation (hereinafter used synonymously). The root of the word education—"educere"—means to "bring out." This root is consistent with fundamental Egyptian thinking that each woman and each man has within herself or himself infinite potential—a fact symbolized by the beetle Khepera which itself means the infinite power of manifestation. The process to "bring out" this potential also grows from the holistic worldview: so learning takes place at the intersection of subjective and objective reality. My previous discussion here about rhizomes and quantum physics corroborates the idea of learning taking place at this intersection—a place in Blues called the Crossroads, and likewise labeled in Voudon. It is a place too where sacrifices are made. My point here is that a core aspect of ancient Egyptian education is that it simultaneously embraces the objective and the subjective world. So the documented confusion about the location, construction, and purpose of the Great Pyramid at Giza can be explained in part by "Johnny and Joan's inability to read" the cultural artifacts of a civilization that works from the "Crossroads." The "either, or" correlative conjunction gets jammed in a "both, and" world.

A Framework for a Digital Age Mystery School: There is no single agreed upon text that documents an initiation process thought to be the core of Egyptian Mystery schools. Nonetheless, my reading of the literature does support the following generalizations—many of which are drawn from the work of Ra Un Neefer Amen. A Kemetic Mystery school curriculum would be anchored in the core beliefs of the previously discussed classical African worldview in terms of space, time, ontology and epistemology: space is defined as "hierarchical value or function;" time is defined a "the order in which reality unfolds;" ontology is determined within the context of community; and epistemology is determined by historical understanding and intuition. A curriculum would approach content from a core assumption that life's purpose is to discover the unity within diversity and thereby free the individual consciousness from its singular island of residence. The process of such liberation is a structured innovation that follows these steps: readiness of the initiate; separation of the initiate from her/his community; initiate formation of a new community; and the re-integration of initiates into the community.

Symbols and actions associated with each stage of initiation vary among cultures, but there are similarities. Symbols associated with readiness often include items that stand for danger, difficulty, or hazard and the successful manipulation of such items (said manipulation may be the answering of questions, the performance of some deed, or some combination of these) is seen as evidence of self-discipline and a willingness to let go of old thoughts. Symbols associated with separation often include items that can be broken, cut, segmented or in someway divided. Figurative umbilical cords, apron springs are severed, and the bird is ejected from the nest. Depending on the society, these symbolical actions are confirmed through dance, ceremony and other communal displays.
Actions associated with initiates forming a new community are intended to led to new ways of thinking about self, community, nature, and the world. Such actions involve learning a new vocabulary to understand connections among various expressions of a unified world; learning different techniques of self-discipline (breathing, meditation, martial arts, diet, etc.); esoteric learning about time and space; practical learning of contents sanctioned by the society in charge of the initiation; learning ethics as relates to personal and communal responsibility as well as responsibility to nature; and learning the history and traditions of their group that elders deem necessary to bind the past, present, and future into a single, living phenomenon capable of assuming both the formal and the informal institutional forms necessary to meet the needs of the community. The re-integration of initiates into society is usually signified through dance, ceremony, speeches by dignitaries, and testimony from initiates who successfully complete the curriculum.

These components of a mystery school curriculum pre-figure what passes for education today: from kindergarten to graduate school, society determines readiness to learn based on a mixture of physical and intellectual assessments that range from having reached a certain chronological age to having scored at a certain level on standardized tests; the separation of the student (initiate) may start with a yellow bus that vacuums him up from the bus stop and deposits him in front of a school, and it may continue with going away to college; the formation of a new communities among students follows a path similar to the one described above, but with decidedly less depth and a determined attachment to forms of instruction that begin a systematic alienation of the child from herself or

himself; and reintegration is similarly symbolized through a graduation ceremony, a speech from a role model, and testimony from a prime initiate exemplar—usually the valedictorian.

Worldview and the appropriately derived purpose of education is what separate both the symbols and actions of the mystery school curriculum from contemporary curriculums. As indicated earlier, the former operates in a world similar to one described in quantum physics while the latter operates in a world similar to the one described in Newtonian Physics. Broadly put, the purpose of education in the mystery school curriculum (and by extension, the purpose in the New Learning Ecology) is to discover the unity within diversity. By contrast, the purpose of education in IE is to seek understanding by endlessly segmenting reality—slicing it into microscopic slivers that have no memory of that to which they were once seamlessly connected.

A Mystery School Curriculum for the Digital Age: My choice to make the framework for the digital school operational is through a curriculum with four interdisciplinary components: peace, harmony, wisdom, and power. These four components have both an internal and external expressions, and the learning starts with the external component(s) and moves to the internal component(s).

The external symbols and activities associated with peace operate in two ways. The outer expressions of peace stress those things that please the body by temporarily helping it to experience heightened pleasure through physicality—an appropriate diet, exercise, sexual intercourse, as well as a range of performance activities (sports, artistic, intellectual, scientific, etc.). This peace sometimes involves working oneself into a frenzy that leads to a release which then results in equilibrium—the contented sigh. These are momentary "highs" that make life pleasurable; conversely, these same pleasures can be abused or expressed themselves as maladies—their worse case scenarios are addictions and phobias.

The internal symbols and activities associated with peace stress free will as a basis to achieve equilibrium irrespective of external stimuli. Accordingly, this form of peace is not dependent on having or not having any "thing." It is an always-available peace that is achieved through meditation and a balanced appetite across all physicality. The internal means of achieving peace can be delusional when it is not anchored in various understandings about equilibrium, purpose, and other subtle aspects of knowing. The ability to internally attain peace represents a higher level of self-control than the external forms of its attainment; however, as noted, both the external and the internal dimensions of peace are necessary to live a full life.

Harmony is externally achieved in two ways. It is first achieved by a healthy awareness and acceptance of personal predispositions—not as ends in themselves, but rather as the self-knowledge necessary to embrace or deny (it depends on the situation) in order to fuel the appropriate conceptualization and resolution of opportunities and challenges that structure life: it is living the consequence of the ancient maxim, "Know thy self." The second way harmony is externally achieved is by living the knowledge that correcting an imbalance does not require actions energized and directed by a desire to get even; rather,

imbalance is corrected by a willingness to do the right thing without feelings of resentment or a desire to get even.

Harmony is internally achieved in three ways. It is first achieved by living the understanding that our essential nature is free of predispositions: while the uncultivated individual is predisposed to certain likes and dislikes, said individual learns through cultivating her/his mind, body and spirit that she/he is not compelled to be led by the appetites that our predispositions may seek to awaken. The second way that harmony is internally achieved is by living the understanding that laws undergird the multitude of expressions of the single phenomenon called reality. These laws are relational and in that sense require active practice as opposed to singular reflection for their operational and practical meanings to be revealed. Put another way, the meanings of ethical principles are revealed in action and results ("You will know the tree by the fruit it bares") as opposed to being revealed through memorization and recitation. The third internal way in which harmony is achieved is by living the decision to delegate your free will to your essential nature wherein, as suggested above, you transcend your ego-personalities as the basis for decision making.

Wisdom means "knowing without going through a logical process." The external aspect of wisdom is a gateway to its internal dimensions. The external dimension of wisdom is similar to some ways in which we are currently educated in that its focus is the acquisition of information. The internal dimension of wisdom does not result from the acquisition of information any more than grocery shopping results in eating a nutritious meal: information is potential fuel for wisdom, and groceries are potential fuel for nutritious meals. The ability to know without going through a logical process is therefore a function of historical understanding and intuition. My previous discussion about CAC epistemology elaborated on this point. So the internal dimension of wisdom is intuition derived from our essential nature (see internal harmony above) and is rooted in information.

The external dimension of power is the convergence of externally harmonious appearances—as words, colors, forms, etc.—into unified expressions. It is the altering atmosphere of a feng-shui space, the transformative smile of a happy child, the soaring rhetoric of a world leader, or the sensual walk of a beautiful woman across a stage. The external dimension of power can trigger ancient associations stored in our reptilian brain and make us connect nubile beauties dancing along a line of promiscuity with consuming large quantities of Budweiser. Such power is a hallmark of advertising, an engine of commerce. This power can also be creatively harnessed by teachers—particularly those in pre-school and kindergarten classrooms. For it is at those grade levels where the unremarkable observation that the way space is used can affect both the desire and the ability of students to learn actually structures classroom layout: pre-school and kindergarten classrooms are bright with color, plants blossom, and goldfish blissfully wriggle through their watery routines.

I have always thought it odd that as students progress to higher grades, those in charge seem to assume that learning best occurs in prison-like environments where colors are

dull, plants are seen only in books, and no living thing is allowed in this space—indeed, one might argue that educational progress is synonymous with transforming students into the living dead, zombies who perform predictably on standardized tests. Still, appropriately used the external dimensions of power can be a gateway to the internal dimensions of power.

The internal dimension of power is accessible through living the internal dimensions of peace, harmony, and wisdom described above. Internal power is not the province of the individual and cannot be accessed through the accumulation of associations, things, and so on. It is a kind of power that requires the individual to live in the reservoir of common-good and draw from it appropriate lessons to use as experience and as ritual to return the individual, the community, and the world to equilibrium. The rituals and results of internal power can be superficially seen in the lives of great women and men who from most objective measures would not have the material wherewithal to make the contributions they made: Clara Barton, Carter G. Woodson, Harriet Tubman, Granville T. Woods, Ida B. Wells, Georgia O'Keeffe, Daniel Hale Williams, and Bessie Coleman are examples. Each of these women and men accessed internal power to make lasting contributions to human possibility.

Connections: the Mystery School Curriculum to the New Learning Ecology: In this section, I expand my discussion of the New Learning Ecology by connecting meanings among the terms used both as analytical categories for worldviews (ontology, epistemology, space and time) and the interdisciplinary components of the MSC (peace, harmony, wisdom and power). The connection is based on similarities in intent and method of both the MSC and the NLE.

This connection is consistent with both the "ordered thinking" that is to occur as a result of initiation into a traditional belief system like the one I describe above in terms of peace, harmony, wisdom and power and the dualistic consistency of the "uncertainty principle" as relates to the impossibility of simultaneously knowing the momentum and position of a physical system. The development and subtleties in the "uncertainty principle" are more than can be explored in this essay: my reference to it and my comparison of it the convergence of meanings across the analytical categories used herein to discuss worldview and curriculum are meant to assert an important way in which the ancients conceived of reality and an important way in which modern science conceives of physical reality. My practical point here is that the ensuing attempt to connect the MSC with the NLE is made possible by already elaborated connections between the worldviews that structure each.

The connection between MSC and the new learning ecology exists in terms of intent and methodology. The intent of the NLE is to use communications technologies to construct and share meaning in the context of community. This is rhizomatic activity emanating from an epistemology that constructs knowledge based on historical understanding and intuition. The further intent, or purpose of this activity is to build community. The growth of social networking sites among "regular folks," as well as the routine, almost institutional use of these sites by business, education and non-governmental organizations

is meant to build community. The fact that organizations and individuals with radically different institutional goals can use these technologies to build community is a testament to the almost universal acceptance of their intent as tools to build community.

The methods used to build community are characterized by openness and an assumption that everyone has potentially something useful to share. With many of these communities there is also a process of initiation wherein, according to Jenkins and others, there is an "informal mentorship whereby what is known by the most experienced is passed along to novices." This aspect of the initiatory process also has the effect of building community—not only between the expert and the novice but also in terms of enforcing a set of values and practices that place a priority on sharing and helping others gain experience and knowledge.

The collaborative nature of the method is facilitated by the technology in such a way that it embraces space and time in a manner that has more in common with CAC and quantum physics than it does with IE and Newtonian physics. Practically this means that time is not linear, as "the order in which reality manifests" time is phenomenological—or event oriented. Part of what this means is that marginalized communities who need time to make change can manufacture all the time they need. The ability to manufacture time is a cornerstone to change and to social justice. Institutional Education (IE) has historically functioned as a time policeman, locking down struggles for social justice by philosophically asserting the linearity of time (that it moves along a straight line) so that any right removed from the reach of marginalized communities is always located further along the continuum of progress. Thus, Martin Luther King, Jr.'s "fierce urgency of now" is a phenomenological concept of time consistent with the way the ancients conceived time, consistent indeed with the "uncertainty principle" of quantum physics.
I reiterate the operational definition of space used here as the "hierarchical value or function" in order to tie it both to methodological considerations of the NLE and to quantum physics. Space as a methodological consideration in the NLE is more entropic than it is geographical. "In computing, entropy is the randomness collected by an operating system or application for … uses that require random data" ("Entropy"). This notion of space is consistent with a core assumption of quantum physics that the velocity and location of an object cannot be simultaneously known—the "uncertainty principle." This is an elusive notion of space in that it does not entirely show itself: the more known about velocity, the less is known about location and vice versa. This idea of space contrasts to a geographical notion of space that is consistent with the physicality of Newtonian physics. Philosophically the geographic notion of space is what shapes institutional education. Accordingly, it has often sought to corral both the creative and learning possibilities of the space that can be created with information technologies.

Efforts to control the space that information technologies create have ontological consequences. Whereas bona fide members of a participatory culture see information technologies as an extension of their collective creative and critical consciousness, those operating outside that culture see information technologies as so many convenience making machines. "Distributed cognition" and "networked intelligence" are terms that describe the way members in participatory culture operate. Distributed cognition asserts

that meaning producing activities are not confined to the "skin or skull of the individual" (Hutchins). Similarly, networked intelligence asserts that "the human mind is a hybrid entity that relies on a symbiosis of biological and cultural processes" (Kai Hakkarainen. Kirsti Lonka. and Sami Paavola).

I earlier contrasted the CAC ontology to the IE ontology by asserting that the former conceptualizes the individual's being in the context of community and that the latter conceptualizes being as an existential event. So the communal intent of the NLE fits nicely with its collaborative methodology that in turn posits a notion of time as change and therefore available for marginalized communities to produce as much of it as necessary. And, as we have just seen, space as hierarchical value or function erases geographical boundaries for an entropic notion of space that is a random like rhizome, asserting its pattern in action.

Conclusions: In closing I want to use the Great Pyramid at Giza to reiterate an assertion I am making about how those IE trained individuals are unable to explain the purpose and method of construction of the GPG. The difficulty in explaining occurs because they are viewing it through the lenses of a worldview incapable of understanding the creations of a system that sees reality as a single phenomenon with multiple expressions of itself. So instead of viewing GPG as an integrative expression of various aspects of a unified reality, it is viewed as a tomb for Pharaohs, an astronomical viewing station, or a monument glorifying a dynasty or Pharaoh. A similar segmentation is seen when Kemetic neteru are discussed as distinct "Gods" in themselves instead of being discussed as discrete aspects of a single "God." The idea of segmentation is a function of the IE worldview which seeks to control—divide and conquer.

The pandemic angst that pervades IE is in part due to the proliferation of information technologies that have displaced the teacher, the school, and other authorities as those with primary control over the production and validation of information. This is part of the reason that standardized testing has been elevated as an enforcement tool to determine who moves on and who remains. Yet, listening carefully we may hear trembling voices mouthing Yeats:

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world…

Yeats was lamenting the results of various wars among Europeans, but his sentiment of authority being lost resonates with that part of my thesis concerning changes being wrought by the new learning ecology: the falconer-teacher bemoans the unresponsiveness of the falcon-student; things are thought to be falling apart because the authoritarian center is "loosed" by ubiquitous access to information sources, as well as the ability to create original content, and semi-original content through "mash-ups." The "mere anarchy" is a poetic name for the periodic—though now accelerated—call for all matters of educational reform.

The new learning ecology has historical antecedents in a part of human history that led to the creation of historical artifacts of such grandeur and sophistication that some 5 to 6 thousand years later experts in relevant fields can divine neither the purpose nor the method of construction of Great Pyramid at Giza. My contention is that both the theoretical and applied lacuna of moderns on this topic is a function of an education based on a worldview incapable of creating an educational system (top to bottom) based on the world of quantum of physics—which is the world of the ancients. Further, my contention here is that the new learning ecology is a revolving door to the past and to the future that has the potential of assisting marginalized communities to produce the content and institutional forms of information necessary for their social justice needs. Rather than dully espousing the impending doom of a "second coming," they may instead join Walt Whitman in "Song of Myself" and proclaim:

I celebrate myself, and sing myself,
And what I assume you shall assume,
For every atom belonging to me as good belongs to you…

And so we end at a beginning of possibility.

References

Amen, Ra Un Neefer (1990). *Metu Neter, Volume 1, The Great Oracle of Tehuti and the Egyptian System of Spiritual Cultivation*. New York: Khamit Publications.

Chopra, Deepak (1994). *Seven Laws of Spiritual Success*. Location: San Rafael, Ca. Amber-Allen Publishing

Brown, John Seely. (1999). Sustaining the Ecology of Knowledge. *Leader to Leader*. No. 12, p. 1- 8.

"Entropy." (n.d.) Wikepedia. Retrieved from: http://en.wikipedia.org/wiki/Entropy

Hutchins, Edwin. (2000). "Distributed Cognition." Retrieved from: http://eclectic.ss.uci.edu/~drwhite/Anthro179a/DistributedCognition.pdf.

"Instructional Design Knowledge Base." (n.d.) Retrieved from Select Instructional Models: http://classweb.gmu.edu/ndabbagh/Resources/IDKB/models_theories.htm

"Introduction and Overview of the Great Pyramid at Giza." (n.d.) Retrieved from: http://www.gizapyramid.com/overview.htm

Kai Hakkarainen. Kirsti Lonka. and Sami Paavola (2004). "Networked Intelligence: How Can Human Intelligence Be Augmented Through Artifacts, Communities, and Networks?" Retrieved from: (http://www.lime.ki.se/uploads/images/517/Hakkarainen_Lonka_Paavola.pdf).

Jenkins, Henry. (n.d.) Confronting the Challenges of Participatory Culture: Media Education for the21st Century. An occasional paper on digital media and learning, John D. and Catherine T. McArthur Foundation (Retrieved from: http://digitallearning.macfound.org/atf/cf/%7B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%7D/JENKINS_WHITE_PAPER.PDF)

Shaw, Ian (2009). "Building the Great Pyramid." The BBC, Ancient History in Depth. Retrieved from: *http://www.bbc.co.uk/history/ancient/egyptians/great_pyramid_03.shtml)*

Siemans, George. (2004). Connectivism: A Learning Theory for the Digital Age. (Retrieve from: http://www.elearnspace.org/Articles/connectivism.htm)

"Urban Planning." (July 12, 2001)Business Wire. PHOENIX.

”(Warren, Dr. Lee (1997). “The Power Latent in Man, The Great Pyramid at Giza.” Retrieved from: http://www.plim.org/greatpyramid.html)

“What are the Facts About the Great Pyramid of Giza.” (n.d.) Retrieved from Answers.com, WikiAnswers: http://wiki.answers.com/Q/What_are_facts_about_The_Great_Pyramid_of_Giza

What is Quantum Physics?” (n.d.) Retrieved from Oracle Think Quest, Projects by students for students: http://library.thinkquest.org/3487/qp.html)

Whitman, Walt. (1855). “Song of Myself.” (Retrieved on 18 February 2010. http://www.daypoems.net/poems/1900.html)

Yeats. W.B. (1920) “The Second Coming.” Retrieved on 18 February 2010: http://www.thebeckoning.com/poetry/yeats/yeats5.html