The Shifting Paradigms: What’s Preventing Progress?

By Vanessa J. Paradis

November, 2009

Defining educational paradigms and situating theoretical constructs within them is complex due to multiple evolving, shifting paradigms. Additionally, learning theories, instructional-design theories, philosophies, and instructional practice, which are all interrelated and interacting can be positioned on various dimensions of these often overlapping, sometimes contentious paradigms. Given the current overall failure of public education to improve outcomes through the federal mandate, the No Child Left Behind Act (NCLB), it is difficult to analyze, on a national basis, the success or failure of the use of Kolb’s (1984) experiential learning styles and Gardner’s (1999) multiple intelligences or other forms of student-centered, problem-based and experiential strategies on a national basis. They are not adequately being implemented, and where they are being used, they often are misapplied (Gardner, 2006; Kincheloe, 2008; Kolb, 1984; Quay, 2003; Gardner, 2003).

To begin, brief descriptions of Kolb’s learning styles, Gardner’s multiple intelligences, student-centered instruction, constructivism, problem-based learning, and experiential learning are presented. Next, paradigm shifts are defined and a conceptual multidimensional spectrum representing current paradigms ranging from the positivist worldview to the emerging complexity-based paradigms is developed. This provides a framework for analyzing, deconstructing, and situating theoretical constructs. Finally, the effectiveness of experiential, learner-centric theories over traditional instructional approaches used in today’s classrooms is analyzed in context with the shifting paradigms and available research.

Learning Theories and Instructional-Design Theories

As Reigeluth (1999) explains, while theory describes how learners learn, instructional-design theory describes more specifically how that should be happening in the classroom through instructional methods. There is often a chasm between the intent of the theory and how it is put into practice which can occur when the theory is interpreted for instructional design purposes and/or when the theory is implemented in classrooms. As Gardner (2003) discovered with his conceptualization of multiple intelligences, there is sometimes confusion between the concept of learning styles and multiple intelligences. These chasms may occur due to teachers operating out of different philosophical paradigms. Before discussing paradigms further, the assigned learning theories will be briefly described.

*Kolb’s Learning Styles*

Kolb’s (1984) learning styles differentiate between learner’s preferences from among four modes of learning: concrete experiences (CE), reflective observations (RO), abstract conceptualization (AC), and active experimentation (AE). With much research, Kolb (1984) established an inventory that determines where a student falls within four different learning styles, which are combinations of the above preferences: divergent (CE and RO), assimilating (AC and RO), convergent (AC and AE), and accommodating (CE and AE). These learning styles are fairly self-explanatory for the purposes here, based on the modes that define them. The associated learning model is explained later in this paper, but the point is, this inventory provides both learners and teachers with a sense of learning strengths and weaknesses and some direction for adjusting the instructional methods. This helps teachers facilitate an individualized, learner-centric educational experience.

*Gardner’s Multiple Intelligences*

 Gardner’s (2006) theory of multiple intelligences was introduced in 1983*.* Gardner posits that “intelligence as a construct to be defined and a capacity to be measured is no longer the property of a specific group of scholars who view it from a psychometric perspective” (p. 244-245). He claims that his view of multiple intelligences, which recognizes seven intelligences “has the strongest scientific support and the greatest utility for the next millennium” (p. 25). His seven intelligences, linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal were based on eight criteria that he had established as significant attributes. These criteria have often been critiqued and weaknesses pointed out, such as the decontextualized construction of his constructs and the belief that his theory resides outside of the “sociocultural, political, and epistemological web” in which he is entangled (Kincheloe, 2004b, p. 5). For example, Kincheloe (2004b) argues that Gardner “normalizes” European culture, relies on positivistic methodology, promotes standardized intelligence testing by relying on it to define “genius,” etc. Other worldviews are alienated from this formulation. Danny Weil states, “Formal educational psychological theories serve as gatekeepers for the dominant social and economic order and the power relations within them” (cited in Kincheloe, 2004b, p. 14). This challenges education in a globalized, multicultural society.

*Student-Centered Instruction*

Student-centered instruction simply changes the focus from the teacher to the students, or from teaching to learning. There are many instructional methods, including collaborative learning, that fall into this category, depending upon whether they deviate from the traditional approach in which the teacher provides the knowledge, such as in a lecture format. For example, constructivism, problem-based learning, and experiential learning as discussed below are all considered student-centered methods of instruction. Kolb’s learning styles and Gardner’s multiple intelligences are theories that aid in implementing more individualized instruction which can be used within the context of other types of student-centered instruction.

*Constructivism*

Constructivism has taken on a life of its own. Starting out as a theory, it is now often considered a philosophy and a paradigm (Dillard, 2006). While constructivism has many versions, in general, constructivists view “learning as knowledge construction . . . that occurs when a learner actively constructs a knowledge representation in working memory” (Mayer, 1999, p. 144). An experiential, student-centered approach that generally considers that knowledge is constructed by the individual is often promoted, as well as the recognition that knowledge is socially constructed. Thus, constructivism often takes form as collaborative, problem-based learning (Quay, 2003).

*Problem-Based Learning*

Problem-based learning is an inductive instructional method that generally falls within student-centered instruction, in which students are provided a problem to solve through course materials and active research. Felder (2009) includes inquiry-based learning, case-based instruction, problem-based learning, project-based learning, discovery learning, and just-in-time teaching within problem-based learning instructional methods. It is thought problem-based learning increases motivation, facilitates learning transfer and helps with the development of creative and critical thinking skills.

*Experiential Learning*

Experiential learning theories evolved from Dewey’s theory that there is an “intimate and necessary relation between the processes of actual experience and education” (cited in Quay, 2003). The Association for Experiential Education defines experiential education as a philosophy which views learning as “a process through which a learner constructs knowledge, skill and value from direct experience” and consists of opportunities for student-direction, connection of learning to the real world, and critical reflection (Ives & Obenchain, p. 65). According to Quay (2003), the common denominator in most experiential models is the “imperative to adapt, to evolve, and to learn via our experience” (p. 106). Kolb’s (1984) experiential learning model, while holistic and a move toward a new paradigm, still provides a linear mode for learning that moves cyclically through concrete experiences, observations, reflection, forming abstract concepts, and then trying out learning in new situations.

Education and Paradigm Shifts

*Paradigm, Defined*

Baggett (2000) defined paradigm as “a working set of assumptions and premises about a given topic of scientific research. It represents a theoretical construct which defines the phenomena being investigated, and to a large extent determines the appropriateness of approach and methodology of research to be used” as based on Thomas Kuhn’s concept of paradigm shifts in his book, *The Structure of Scientific Revolutions,* published in 1962 (p. 1). Kuhn defined his model in terms of worldviews and described a paradigm shift as “replacing one way of thinking about knowledge and research (and also the world the researcher is studying) with another incommensurable view” (Donmoyer, 2006, p. 12).

Educational paradigms can be discussed in relation to research, theory, and learning. There is still the tendency toward “either-or” philosophical arguments over whether education should be traditional or progressive (Dewey, 1938, p. 17). It is represented by the opposing paradigm of NCLB’s focus on positivism and a basic, standardized education in contrast with the evolving paradigms that incorporate chaos, enactive, and complexity theories (Kincheloe, 2008; Radford, 2008; Savage, 2008). This continuing dualistic thinking about education and within education affects educational research and renders the discipline in need of greater compromise, tolerance, and balance (Lee & Rochen, 2009). While most of the described paradigms fall in between these two extremes, it is useful to keep this dichotomy in mind in any analysis or comparison of paradigms. As suggested by Dewey, relative to traditional and progressive education, neither concept should be viewed as complete in themselves, and the same holds just as true today in relation to paradigms. He had cautioned, “There is always the danger in a new movement that in rejecting the aims and methods of that which it would supplant, it may develop its principles negatively rather than positively and constructively” (p. 20). This caution should be heeded as education moves forward midst growing complexity and changing paradigms, and as researchers and educators attempt to ascertain and apply good practices in the classroom.

Guba and Lincoln (cited by Dillard, 2006) defined paradigm in relation to research as “the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways” and they delineated four major educational paradigms, called the “Big Four” which included positivism, postpositivism, critical theory and constructivism (p. 60). They recommended ascribing to one of these in order that there might “at least be some protection from the paradigm ‘wars’ that our field is engaged in fighting” until such time a “more informed and sophisticated paradigm emerges” (p. 61). This seems extreme and does not bode well to the reputation of education as a profession. There are other options; there must be if education is going to continue to serve its purpose.

*The Need for a Paradigm Shift in Education*

Many educational theorists and researchers assert that Western society is indeed in the middle of a shifting paradigm (Beyers, 2009; Fink, 2003; Gardner, 2006; Kincheloe, 2008; Reigeluth, 1999, 2009; Steihl & Lewchuk, 2002; Suoranta & Vadén, 2007). The emerging paradigm results from the need to sensibly address growing complexity and the interrelationships between disciplines, society, culture, politics, economics, globalization, technology, etc. The shift is occurring more rapidly in some knowledge domains which may ultimately push education to adopt and adapt (Kincheloe, 2008). Many philosophers, educators, and theorists acknowledge this shift will move teaching toward more learner-centric methods, as well as affect how research problems, questions, and methodologies are approached (Horn, 2008; Kincheloe, 2008; Kuhn, 2008; Lather, 2006; Quay, 2003; Reigeluth, 1999, 2009; Radford, 2008; Suoranta & Vadén, 2007). This is being observed with the increasing numbers of qualitative and mixed methodological research being conducted because of their ability to provide understandings about complex societal issues, but this likely will not be enough. There is also a greater need for the use of the bricolage – a multimethodological, multitheoretical, and multiperspectival form of research (Freeman, 2007; Kincheloe, 2001, 2005; Kincheloe & Berry, 2004). Kincheloe’s (2005) advanced conceptualization of the critical bricolage in concert with his *critical complex epistemology* and *complex criticality*, assist with a rigorous understanding of the complex relationships in educational environments and how they shape knowledge and reality. Perhaps, even in its early conceptualization, it represents the new paradigm Guba and Lincoln (cited in Dillard, 2006) called for and is positioned opposite of traditional positivistic forms of research.

Situating concepts such as Kolb’s early learning styles and Gardener’s multiple intelligences within current paradigms and analyzing the effect they have had in the classroom is daunting. Paradigms are defined differently according to context and different people experience them differently. Still, it is a beneficial to establish some sort of model in mind to aid analysis since “linear, structural models reduce and ‘tame the wild profusion of existing things’” (Foucault, cited in Lather, 2006). Lather (2006) presents a simplified framework for research paradigms that include positivist, interpretist, emancipator, deconstructivist, and neo-positivist viewpoints, but it fails to highlight that both practice and paradigms are overlapping, interacting endeavors that impart continuous change on each other. In other words, it “boxes” them in and does not illustrate the continuing evolution of these concepts. Lather (2006) acknowledges the value in the “proliferation” or increased numbers of paradigmatic views, but conceptually situating overlapping theoretical constructs into boxes is difficult.

*A Multiperspectival, Multidimensional Paradigmatic Model*

A central, overarching spectrum might be proposed that spans from traditionally-operating paradigms of education, often referred to as “traditional” education at one end, to a more holistic, ecologically-based paradigm at the other end. As Quay (2003) recommends, at the left end of the spectrum, we can envision the positivistic, objectivist, or a “machine metaphor (which they call complicated)” for the “traditional” paradigm (Dewey, 1938) and at the other end of the spectrum, to the far right, we can imagine a more holistic “organic metaphor (which they call complex)” for the emerging complex paradigm (p. 107). It should be noted that in this conceptualization, these paradigms are in a continuous state of flux and can only be described at brief moments in time, and the paradigms extend back in history and forward into the future as well. However, this simplification is useful for contextualized descriptions of multiple paradigms in order to roughly situate various theories.

 Kincheloe (2008) redefined the machine metaphor or positivistic paradigm to bring it up to date and more in line with how this paradigm operates in education today, with the “resurgent positivism and governmental incursion into the space of research methods” (Lather, 2006). The attributes, which are thoroughly defined and illustrated in many contexts in Kincheloe’s book, *Knowledge and Critical Pedagogy: An Introduction*, include: formalism, intractability, decontextualization, universalism, reductionism, and one dimensionality (FIDUROD). Of course, the opposite constructs would be placed at the opposite ends of the spectrum. Each of these dimensions can be broken down further. For example, intractability may be represented by the dialectic between disciplinarity and interdisciplinarity in those instances when these particular attributes are under comparison between various theories or instructional practices. As an example of practice, methods of teaching writing may fall anywhere on the spectrum of intractability vs. flexibility as well as on a spectrum of formalism vs. post-formalism. Thus, this multidimensional model for paradigms is flexible and morphing to meet the needs of the paradigms, philosophies, theories, ideologies, etc., that are being compared.

The new, more rigorous description of the traditional paradigm by Kincheloe (2008) is referred to as FIDUROD, the acronym for its attributes, and it occupies the far left of the spectrum. On the other side of the spectrum, lies the paradigm in which Kincheloe has synthesized chaos, complexity, enactive, and other theories, again the most complete description to date as to where the new paradigm may be evolving. He describes c*ritical complex epistemology*, based on a *complex criticality*, as being composed of the following attributes: Reality and the perceiver shape each other; the paradigm is grounded in the goal to end human suffering; there are multiple realities; it is important to understand our location in the “tangled web of reality”; knowledge is constructed for social action; the universe is an active, organizing entity and far more complex than we can describe; knowledge is situated inside a larger process with which it engages in a dynamic, ever-morphing interrelationship; human interpretation and understanding create knowledge; contextualization connects experiences and knowledge; and ontological imagination allows construction of our own identities and subjectivities (pp. 227-253). Thus, the right side of the spectrum is labeled COMPLEX CRITICALITY. This forms the overarching paradigmatic model; however, in order to analyze the learning theories within this model, it is necessary to conceive of other dimensions lying parallel to this overarching spectrum, as alluded to with the dialectical writing and disciplinarity examples.

The justification for using this representation is that, essentially, all paradigms defined today can be situated, and thus compared, between the two extreme ends of this spectrum, including those theorists who call for the inclusion of spirituality, such as Dillard (2006), Wexler (2007), hooks, (1994), and many others. The far right side of the spectrum opens the doors for multiple ontologies, cosmological viewpoints, and epistemologies, and even the possibility that Dillard proposed – individuals can create their own paradigms. Ultimately, it would represent the ability to engage in learning as a practice of freedom as envisioned by bell hooks (1994).

The purpose is not to put these concepts at each end of the spectrum in opposition, but rather to show that there are many ways to experience paradigms (hence, life) and many positions along the spectrum. Thus, the goal is for dialectical discourse to promote multiplicity of philosophies, theories, ontologies, epistemologies, etc., and their manifestations in research, practice, and even living. This allows for easier comparison and analysis as well as for a more conscious choice of where we wish to reside on the spectrum in any given context at any given point in time. This pulls educators out of locked-in paradigms to see other possibilities. Locked dichotomies are a sign of the disease of power and control that inhibits progress. As Hardt & Negri (cited in Lather, 2006) point out, “Reality is not dialectical, colonialism is” (p. 35).

*Analyzing Instructional Theories and Methods*

Parallel to the overarching spectrum that has been defined imagine additional spectrums that morph in and out as needed when comparing various theories or methods. For example, on the far left, associated with the FIDUROD Paradigm, one might associate teacher-directed instruction, since it falls under “traditional” teaching and so another number line drops down below the overarching FIDUROD – COMPLEX CRITICALITY spectrum. At the opposite, or far right end of the spectrum, is full immersion in a student-centered, community form of education as can be observed within some cultures that synthesizes the social construction of knowledge and draws from situated learning such as Lave & Wengner’s idea of an engaged education being one that is involved in “full participation in the sociocultural practices of a community” (cited in Quay, 2003, p. 107). By using this changing, but anchored multidimensional visual, one can compare and contrast the theories according to various important attributes to determine where they lie, overall within the spectrum.

While it is feasible to overlay the various paradigms as described by other authors, such as Lather (2006), it must be remembered that within these paradigms there are overlapping attributes. The purpose, here is not to determine specifically which paradigm a particular theoretical construct operates out of, but rather to gain a sense of where it is positioned overall between the two extremes of the evolving paradigm. Additional dimensions to this multidimensional conceptualization are unlimited. For example, additional dimensions would independently consider the dialectical relationships between disciplinarity and interdisciplinarity, one perspective vs. multiperspectival, quantitative vs. qualitative research, etc., depending upon what the focus of the analysis might be. This is not a simple or easily quantifiable endeavor, and as stated at the beginning, positioning theoretical constructs within a paradigmatic context is complex. The value, however, in viewing the paradigm with multiple, morphing and evolving pathways, is that it allows for a conceptualization and positioning of the relevant dialectical attributes while explaining how and why the attributes of particular theories may lie at different distances along the overarching spectrum. This deconstruction allows for a better analysis and understanding of the dynamics and differences that shape how theories are formed and/or applied. For example, attributes of a theory may be developed at one position on the spectrum, but shown to be applied at another. Quay (2003) points out an example worthy of an extended quote due to its relevance to this discussion:

The connection between learning and participation highlights two major issues for models of learning in experiential education. In many of these models (e.g. Kolb, 1984) learning has been equated with a stepwise process in which an internalized reflection follows concrete experience resulting in an adaptation revealed in further experience. We step out of experience to reflect and process, then we step back in. Experiences exist as a memory to be processed via reflection. These models have strongly influenced pedagogy resulting in the programming of separate tasks; the doing and then the formal reflecting, followed by more doing. In this sense, learning in experiential education could be placed within the more mechanistic category of learning theories. Its holistic nature, which we intuitively understand, is not made manifest (p. 108).

Thus, the theory calls for experiential learning, which could position it to the far right of the conceptualized spectrum, particularly in situated learning manifestations that are holistic, active, have an affinity with social constructionism, and are working toward full participation in communities of learners (Quay, 2003). The linear implementation holds it to the left. Thus, it is clear that this theory, albeit it is a few steps forward, still derives from a positivist paradigmatic influence or force. While, this might easily be assumed through textual analysis, the value of a visual representation is that it highlights the impact of the paradigmatic positioning and it makes it easier to envision where any attribute might fall on the spectrum in relation to what it is being compared to.

The analysis of constructivism poses a particular challenge. Constructivism can literally span the entire length of the model. At the positivistic end of the spectrum, dominant power predetermines what that knowledge shall be and teachers devise a map for students to ultimately construct a product that reiterates existing knowledge. For example, Mayer’s (1999) version in which “the primary goal . . . is to foster knowledge construction (understanding) through direct instruction” would be positioned toward the FIDUROD end of the spectrum (p. 142). At the opposite end of the spectrum, complete freedom allows the student to literally create imaginative new knowledge with minimal direction. Typical student-centered approaches observed in classrooms might fall about midway on the spectrum if one were to analyze the individual attributes such as how involved learners are in selecting the content, constructing their own knowledge, etc. Kincheloe’s (2005b) critical constructivism with its greater focus on interpretivism in concert with the other attributes, such as interdisciplinarity and multiple perspectives that represent the shift toward COMPLEX CRITICALITY would take a position to the far right of the spectrum. Some teachers provide students with a set of linear procedural instructions instead of allowing them to find their own pathways to knowledge construction, which moves the application of constructivism to the left on the spectrum. A common way that constructivism is misapplied is by requiring the same instructional materials, such as specified textbooks, for all students. A textbook can be a powerful directive in the construction of knowledge, and in fact can often results in the repetition of the knowledge presented in the text, thus, again pushing constructivism to the left.

 Howard Gardner’s theory of multiple intelligences also benefits from this form of analysis. Gardner (1999) departs from traditional education or the FIDUROD idea that all knowledge must be taught and assessed the same way. This moves his theory toward the COMPLEX CRITICALITY end of the spectrum in terms of teaching. As far as knowledge, he has not strayed far from the traditional, FIDUROD dimension, as conveyed by his belief that everyone should master a particular body of knowledge and skills. Also, keeping the theory constrained is his defining his intelligences as “end states,” which builds in predetermined limitations for human potential (p. 48). Gardner’s (2006) updated theory, in which he has added a “naturalist” intelligence, stopped short of adding “spiritual” and “existential” intelligences. This move clearly leaves his theory hanging out in the center of the spectrum because it is not able to adequately recognize or synthesize multiple ontologies and epistemologies as COMPLEX CRITICALITY endorses. Kincheloe (2004) contended that Gardner’s theory is “cosmologically, epistemologically, and ontologically alienated” (p.21). The new version has not remedied this. Kincheloe places Gardner’s theory in an “awkward position between objectivist positivism and an antipositivist understanding of the role of subjectivity in all knowledge production” (p. 12). Gardner uses positivist science to define his constructs, but shuns positivism when it comes to standardized testing. Thus, in practice, Gardner’s theory, might be anywhere to the left of the center of the spectrum. It may manifest as a positivist, teacher-directed form of instruction in which the teacher not only objectifies and segregates the concepts of the various intelligences, but also uses positivistic methods of determining which style particular students would most benefit from (such as relying on inventories) and then assigning work accordingly using teacher directed approaches. On the other hand, with a more holistic approach of Gardner’s multiple intelligences, this theory could conceivably move away from the center, but it will never approach the far right unless the theory is adjusted in some major ways.

As is clear by this discussion, the possibility is left open for a theoretical construct to be positioned along multiple points of this model. This, alone, makes evaluating difficult, and yet, this is the very sort of deconstructive analysis that must occur before we can make any sense of how effective these complex theories are in practice. The model can obviously be developed further. However, even a general sense of where we might place attributes of various theories on the axes for comparing how they are being applied will assist greatly in establishing a sense whether the theory is being appropriately applied and whether the theory improves educational outcomes if being used as designed.

*Can We Measure Effectiveness?*

The government’s mandate to provide a basic education in public schools via NCLB impacts the ability to apply theories deriving from new paradigms, thus making evaluation of their effectiveness on a national basis nearly impossible. The traditional view of education drives much of educational research today, thus placing an emphasis on evaluating instructional practices that have been derived outside of social contexts. The best that can be done is to comb through various research studies that have evaluated in a rather piecemeal fashion theories that have been implemented in order to determine their effectiveness in various contexts. This has little relevance, however, with what is happening in today’s classrooms as it can only demonstrate what might be should these theories be implemented in a more widespread manner. Because schools across the nation have failed to show improvement since the implementation of the NCLB, about all that can be concluded is that what’s being currently implemented in classrooms across America, overall, is not working to improve outcomes (Greg, 2009; Krigman, 2009). This says nothing about the impact of the effectiveness of evolving theories over traditional approaches.

At best, researchers can continue to evaluate isolated examples of instructional approaches and ensure they are implemented according to the intended design. As Ives and Obenchain (2006) discovered, results are favorable for experiential education, but most of the studies present limitations in that they are not implemented in traditional educational settings. Other studies, even though gains in student achievement and standardized test scores were noted, did not use control groups. Most studies involving experiential learning show positive gains for students, but are fraught with confounding variables and cannot be generalized to more traditional settings. According to Ives and Obenchain, the research base is just emerging that evaluate “reform-based approaches to education, including experiential education” to see how they affect achievement. So far, it appears that these methods enhance higher order thinking skills without detracting from the gain of knowledge and skills needed for the standardized tests. Thus, Ives and Obenchain conducted a study to test the effect of experiential instruction on the development of higher order thinking skills and the lower order thinking skills needed to pass standardized tests in comparison to traditional instruction. In concurrence with the research, they also found that higher order thinking skills did improve with no sacrifice in lower level thinking skills as evidenced on pretest-posttests.

Conclusion: What’s Preventing Progress?

Whether educational research in respect to learning styles and multiple intelligences has revolutionized education is highly debatable. While these learning theories have definitely contributed to instructional-design theory, the application in schools has been hampered by the current domination of traditional forms of learning. NCLB, with its focus on basic education and quantification of learning has had a powerful effect in slowing the movement toward a new paradigm of education in which learner-centric teaching predominates.

There are several primary, but powerful dynamics that have essentially held back this evolving paradigm which ultimately hold back the evolution of the theories. Some of the theories have been developed and continue to be researched from an empiricist, positivist methodology which limits their successful application. The theories that do incorporate complexity, chaos, and enactive theories such as Kincheloe’s (2008) highly evolved formulations, have largely not been tested, applied, or researched. While experiential approaches look promising, more research needs to be done and there is also an issue regarding the generalizability of research results across different content areas (Ives & Obenchain, 2006). A more rigorously developed model for comparing theories and how they are applied may be helpful for analysis. It is not known whether such a model has been created. A final factor, is the movement, politically mandated, over the past six years that requires teachers to go back to “teaching the basics” that has stripped them of their professionalism (“deskilling”) and the freedom to use these student-centered instructional techniques (Kincheloe, 2008). The problem with many of teacher development programs, just like most education, is that it is steeped in the positivistic FIDUROD paradigm, and does not prepare teachers for teaching in a rapidly changing, evolving educational environment that needs to move forward toward the COMPLEX CRITICALITY paradigm.

It is imperative that more time be spent learning about the changing paradigms and how the opposing components fit into the overarching model in order to prevent education from being dragged backwards. With more knowledge, analysis, and dialogue, professionals can consciously choose their positions along the paradigm spectrum in order to keep education moving forward toward continuous improvement. The obvious tool for accomplishing this quickly and successfully is technology. Through the Internet, dialectical conversations can be initiated so that socially constructed solutions keep us moving forward instead of locked up and in opposition to one another (Gardner, 2003; Baker, Jensen, & Kolb, 2002). This was Joe Lyons Kincheloe’s (2008) fondest dream and one which I shared with him. He envisioned *Critical Knowledge Networks* comprised of researchers, theorists, educators, teachers, students, and others who join together in a sort of “dialogical dance” – to listen, converse, research, and work out the solutions for these complex educational problems facing us today and to work together to “alleviate human suffering.” An element of his approach, of course, was activism, for if change is only talked about it will not come about. Solving these issues in a collaborative, collective, and loving manner would ultimately create an educational system that is relevant, rigorous, and accessible to all. It is sad that a man with such great vision is no longer with us today. Joe Lyons Kincheloe passed away last December 19, 2008 at the age of 58.

One final consideration is the thought that the fixation on paradigms tends to keep people locked in modes of thinking that may be impeding educational progress (Donmoyer, 2006). While Donmoyer argues that it may have been appropriate to adopt Kuhn’s definition of paradigm during the 1970s, “it is now time to leave our hermetically sealed paradigmatic universes and engage with those in power in their own terms….My argument for abandoning paradigm talk, in short, is based on strategic and pragmatic considerations” (p. 29). It is important to examine the issues that confront education from multiple perspectives and “even contradictory criteria.” And, to put it more bluntly, Donmoyer concludes, “As long as members of the academic wing of the field believe that academicians inhabit different worlds and, consequently, that members of one group have nothing to say to or learn from members of other groups, the academic community as a whole will not have much to contribute to the solution of educational problems” (p. 30). What ends up happening is that policy-makers are provided their one-dimensional solutions that continue to send education backwards toward FIDUROD rather than progressing forward to find solutions for the complex issues. Donmoyer suggests it is time to put away the “isolated heavily bordered paradigmatic gardens” to begin exploring the dichotomies, in order to push for qualitative work in its multiple forms (p. 30). Refining the conceptual model that was presented here in order to explore these dichotomies while ignoring the “paradigmatic gardens,” is a step toward that endeavor.

References

Baggett, L. “Chip” (2000). Professional issues of the cultural paradigm shift: A new AHP Energy center. Association for Humanistic Psychology. *Perspective Magazine.* August/September 12, 2009. Retrieved November 17, 2009, from http://www.academyprojects.org/baggett.htm.

Baker, A. C., Jensen, P. J. & Kolb, D. A. (2002). *Conversational learning: An experiential approach to knowledge creation.* Westport, CT: Quorum.

Berube, C. (2008). Atoms, strings, apples, and gravity: What the average American Science teacher does not teach. *Teaching Science, 81* (5), 223-226.

Beyers, R. N. (2009). A five dimensional model for educating the net generation. *Educational Technology & Society, 12* (4), 218-227.

Bosch, W., MacEntee, V., Morey, T., Nichols, J., Pacitti, P., Shaffer, B., …Young, R. (2008). Beyond lip service: An operational definition of “learning-centered college.” *Innovative Higher Education, 33,* 83-98.

Brekhus, W. H., Galliher, John F., & Gubrium, Jaber, G. (2006). The need for thin description. *Qualitative Inquiry*, 11 (6), 861-879.

Catsoulis, J. (2009). What ails public schools? Better ask, what doesn’t. *New York Times*, November 18, 2009. [Review of the motion picture *The War on Kids*]. Retrieved November 19, 2009, from http://www.nytimes.com/2009/11/18/movies/18kids.html?\_r=2&scp=1&sq=war%20on%20kids&st=cse.

Chen, Fei-Ching and Wang, T. C. (2009). Social conversation and effective discussion in online group learning. *Education Communications and Technology, 57,* 587-612.

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Upper Saddle River, NJ: Pearson.

Davis, B. & Sumara, D. (2002). Constructivist discourses and the field of education: Problems and possibilities*.* *Educational Theory, 52* (4), 409-428.

Dewey, J. (1938). *Experience and education.* New York: Simon and Schuster.

Dillard, C. B. (2006). When the music changes, so should the dance: Cultural and spiritual considerations in paradigm ‘proliferation’. *International Journal of Qualitative Studies in Education, 19* (1), 59-76.

Donmoyer, R. (2006). Take my paradigm … please! The legacy of Kuhn’s construct in educational research. *International Journal of Qualitative Studies in Education, 19*, 11-34.

Driscoll, Marcy P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston: Pearson.

Dubois, W. E., Amankwatia, II, B., & Hilliard, III, A. B. (April, 2007). *Shaping research for global African educational excellence: It is now or never.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Felder, Richard (2009).Student centered teaching and learning. Retrieved November 16, 2009, from http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Student-Centered.html.

Freeman, R. (2007). Epistemological bricolage: How practitioners make sense of learning. *Administration & Society, 39* (4), 476-496.

Freire, P. (1970). *Pedagogy of the oppressed*. NY: Continuum.

Gall, M. D., Gall, J. & Borg, Walter R. (2003). *Educational research: An introduction* (7th ed.). Boston, MA: Pearson

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. NY: Perseus.

Gardner, H. (2003). *Multiple Intelligences after Twenty Years*. Paper presented at the American Educational Research Association, Chicago, IL. Retrieved November 11, 2009, from http://pzweb.harvard.edu/PIs/HG\_MI\_after\_20\_years.pdf.

Gardner, H. (2006). *Multiple intelligences: New horizons.* NY: Perseus.

Giroux, H. A. (2007). *The university in chains: Confronting the military-industrial-academic complex.* Boulder, CO: Paradigm.

Greg, T. (2009). Student success still a mixed bag. *USA Today,* April 29, 2009. [Electronic version].

Gutek, G. L. (2004). *Philosophical and ideological voices in education.*MA: Allyn & Bacon.

Gutek, G. L. (2004b). *Educational philosophy and changes.* Excerpted from Gutek, G. (2003) *Philosophical and ideological voices in education.* Capella University Edition. Boston, MA: Pearson.

Haggis, T. (2008). ‘Knowledge must be contextual’: Some possible implications of complexity and dynamic systems theories for educational research. *Educational Philosophy and Theory. 40* (1) 159-176.

hooks, bell (1994). *Teaching to transgress: Education as the practice of freedom.* NY: Routledge.

Horn, James (2008). Human research and complexity. *Educational Philosophy and Theory, 40* (1) 144-157.

Huang, J. (2009). Presenting humanism. *The Humanist,* March-April, 2009, 35-36.

Ives, B. & Obenchain, K. (2006). Experiential education in the classroom and academic outcomes: For those who want it all. *Journal of Experiential Education, 29* (1), 61-67.

Key School (2009). A blueprint for understanding. *The Key Review*, fall, 2002. Retrieved November 11, 2009, from http://www.keyschool.org/news/detail.asp?pageaction=ViewSinglePublic&LinkID=959&ModuleID=292

Kincheloe, J. L. (2001). Describing the bricolage: Conceptualizing a new rigor in Qualitative research. *Qualitative Inquiry 7,* 6. 679-692.

Kincheloe, J. L. (2001b). Getting beyond the facts: Teaching social studies/social sciences in the twenty-first century, (2nd ed.). New York: Peter Lang.

Kincheloe, Joe L. (2004). Introduction: the power of the bricolage: Expanding research methods. In J. L. Kincheloe and K. S. Berry *Rigour and Complexity in Educational Research: Conceptualizing the Bricolage* (pp. 1-22). New York: Open University Press.

Kincheloe, J. L. (Ed.). (2004b). *Multiple intelligences reconsidered.* New York: Lang.

Kincheloe, J. L. (2005). On to the next level: Continuing the conceptualization of the bricolage. *Qualitative Inquiry, 11* (3), 323-350.

Kincheloe, J. L. (2005b). *Critical constructivism.* NY: Peter Lang.

Kincheloe, J. L. (2008). *Knowledge and critical pedagogy: An introduction.* Amsterdam: Springer.

Kincheloe, J. L. & Berry, K. S. (2004). *Rigour and complexity in educational research: Conceptualizing the bricolage.* New York: Open University Press.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and of development.* Upper Saddle River, NJ: Prentice.

Krigman, E. (2009). Mark Congress as ‘tardy’ in education. *National Journal, 20.*

Kuhn, L. (2008). Complexity and educational research: A critical reflection*. Educational Philosophy and Theory, 40,* (1), 177-189.

Lather, P. (2006). Paradigm proliferation as a good thing to think with: Teaching research in education as a wild profusion. *International Journal of Qualitative Studies in Education, 19* (1), 35-57.

Lee, C. D. & Rochen, R. (2009). *2010 Annual Meeting Theme: Understanding Complex Ecologies in a Changing World.* American Educational Research Association. Retrieved November 11, 2009, from http://www.aera.net/Default.aspx?id=7588.

Lin, S. Y. & Overbaugh, R. C. (2009). Computer-mediated discussion, self-efficacies and gender. *British Journal of Educational Technology, 40,* (6), 999-1013.

March, F. (2008). The evolution of the mind & what it means to humanism. *The Humanist*. January-February, 2008, 16-19.

Mayer, R. E. (1999). Designing instruction for constructivist learning. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory, volume II. (pp. 141-159).* NY: Routledge.

McLaren, P. (2009). Forward. In Kempf, A. (Ed.). *Breaching the colonial contract: Anti-colonialism in the US and Canada.* (vii-xvi). Amsterdam: Springer.

Ollman, B. (2003). *Dance of the Dialectic: Steps in Marx’s Method.* Urbana and Chicago, IL: University of Illinois.

Ollman, B. & Smith, T. (Eds.). (2008). *Dialectics for the new century.* New York: Palgrave Macmillan.

Piereson, J. (2008). Liberalism vs. humanism. *The New Criterion,* May 2008, 28-34.

Quay, J. (2003). Experience and participation: Relating theories of learning. *The Journal of Experiential Education, 26 (* 2), 105-116.

Radford, M. (2008). Complexity and truth in educational research. *Educational Philosophy and Theory, 40,* (1), 144-157.

Reigeluth, C. M. (Ed.). (1999). *Instructional-design theories and models: A new paradigm of instructional theory, volume II.* NY: Routledge.

Reigeluth, C. M. & Can-Chellman, A. A. (Eds.). (2009). *Instructional-design theories and models: Building a common knowledge base, volume III.* NY: Routledge.

Simon, M. K. & Francis, J. B. (2001). *The dissertation and research cookbook from soup to nuts: A practical guide to help you start and complete your dissertation or research project* (3rd ed.)*.* Dubuque, IA: Kendall/Hunt.

Stanford (2009). The Stanford encyclopedia of philosophy. E. N. Zalta, (Ed.). http://plato.stanford.edu.

Stiehl, R. & Lewchuk, L. (2002). *The outcomes primer: Reconstructing the college curriculum* (2nd ed.). Corvallis, OR: The Learning Center.

Tobin, K. & Kincheloe, J. (Eds.). *Doing educational research: A handbook.* The Netherlands: Sense.

Wexler, P. (2007). Religion as socio-educational critique: A Weberian example. In J. L. Kincheloe and P. McLaren (Eds.), *Critical pedagogy: Where are we now?* (pp. 44-56). New York: Peter Lang.