

A Postmodern Vision of Time and Learning: A Response to the National Education Commission Report Prisoners of Time

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In this article, Patrick Slattery challenges the assumptions underlying many educational policy documents, such as the 1994 Report, Prisoners of Time, which, in Slattery 's view, depict time as both an object to control and as a dictator of the linear sequencing that shapes schooling. Slattery argues for a proleptic understanding of time in education. That is, he calls for an understanding that acknowledges how time interconnects with classroom life by providing an overview of various perspectives from classical physics that illuminate the interdependence of the space-time continuum, by addressing the role of personal history in influencing the relationships of students and teachers, and by advocating for curricula that connect to the realities of students' lives.

Time has traditionally been incorporated into educational research as a variable to be controlled, managed, or manipulated for the purpose of advancing instructional objectives, improving classroom management, and enhancing evaluation results. Educational studies of time are rooted in modernist conceptions of segmentation and linear progress. These conceptions assume that isolated parts of complex systems (like schools, people in schools, or curriculum) can be divided into coherent and cohesive segments (like grade levels, control groups, or subject matter disciplines) and measured quantitatively without contamination. The hermetically sealed results can then be studied, generalized, and applied to any other context for the purpose of insuring steady progress and sequential development over time throughout the entire system. This philosophy of modernity has resulted in an exaggerated emphasis on manipulation of time: time management, timed tests, wait time, time on task, quantifiable results over time, time

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schedules, time-out discipline centers, allocation of instructional days on annual school calendars, core academic time, Carnegie units, time between classes, year-round schooling, and the like. Research efforts designed to manipulate time as an isolated, independent, and quantifiable variable can be traced to the assumption that the universe was created in time and space, as opposed to time and space being interwoven into the very essence of the cosmos.

Modern assumptions about the nature of time stem from the seventeenth century and the Newtonian vision of the universe as a giant clockwork mechanism with time marching forward in an irreversible trajectory, sometimes called the arrow of time (Coveney & Highfield, 1990; Davies, 1983; Toulmin, 1982b). The popular adage “time flies” becomes a metaphor for modern life, where the ticking clock and the flying arrow dominate human consciousness and control life experiences. Dwayne Huebner (1975) contends that the effort by educators to establish clear and unambiguous goals is a result of this dominant metaphor of time. This search for goals is fanciful and idle, because it attempts to remove educators from the difficult process of living historically (i.e., being attentive to the lived experience of students and teachers in each unique context). Huebner (1975) writes, “It has almost been assumed that if the educator can clearly specify his [*sic*] goals, then he has fulfilled his responsibility as an historical being. But historical responsibility is much too complex to be so easily dismissed” (p. 239). In this goal-driven, clock-oriented milieu, time becomes a constraint, as demonstrated in this caution by Steve Tozer (1993): “Regardless of the teacher’s style, aims, and orientation toward teaching, decision-making and problem solving with urgent time constraints are a recurring part of the teacher’s routine” (p. 15). Thomas Good and Jere Brophy (1990) similarly warn, “Classroom settings also impose constraints on what can and cannot be accomplished. Whether teachers instruct the whole class, divide the class into three or four groups, or allow students to work individually, they have limited time for one-to-one contact with students” (p. 19). The assumption by Tozer, Good, Brophy, and most educational literature is that time is an external factor that constrains educators.¹

Postmodern philosophies envision time in a very different context, a context that is urgently needed for a modern world that has reached a saturation point of stress. In *The Saturated Self* Kenneth J. Gergen (1991) contends:

¹Typical of this external conception of time is Robert J. Marzano’s (1992) contention in the Association for Supervision and Curriculum Development document *A Different Kind of Classroom* that “obviously students must perceive that they have the necessary materials, time, equipment, and so on. to complete a task. These are external resources (p. 26). Time is understood as an external resource in most educational publications (as well as the literature of other disciplines). David Bohm (1978) challenges this assumption. He contends that while conventional notions of physics and its worldview are based on exclusive external relations — which he calls “explicate” order — the new sciences present a new view of internal relatedness — an implicate order. David Ray Griffin expanded on Bohm’s earlier work to incorporate the work of Ilya Prigogine and process philosophy. In *Physics and the Ultimate Significance of Time*, Griffin (1986) explores three emerging viewpoints on time: Asymmetry is more fundamental than symmetry in nature, internal relations and not exclusive external relations characterize the cosmos, and, from Alfred North Whitehead, irreversible temporal relations characterize the most elemental components of the world, thus implying that time exists for a single electron or atom. The work of Bohm and Griffin, especially the research in the area of internal relations, offers fresh insights for an educational community that has limited the view of time to an external resource to be manipulated as an independent variable.

With the technology of social saturation, two of the major factors traditionally impeding relationships — namely time and space — are both removed. The past can be continually reviewed — via voice, video, and visits, for example — and distance poses no substantial barriers to ongoing interchange. Yet this same freedom ironically leads to a form of enslavement. For each person, passion, or potential incorporated into oneself exacts a penalty — a penalty of both being and of being with. In the former case, as others are incorporated into the self, their tastes, goals, and values also insinuate themselves into one's being. . . . Each new desire places its demands and reduces one's liberties. (pp. 74—75)

And so it is with the insatiable desire for more time, more data, more rigorous core curricula: our liberties are reduced and we actually become prisoners of time. This problem is exacerbated by the rational solutions for the redistribution of time proposed in the modernist philosophy.

The modernist solution to the dilemma of teaching in a milieu with pervasive time constraints is to develop the technology and organizational structures that will reallocate time more efficiently. Advanced technology designed to save time has compounded the problem, however, by providing more data and more options without fundamentally altering the modern assumption that temporality is a linear series of events that can be broken down, isolated, segmented, and evaluated for the purpose of creating human progress over time. Thus, history marches forward, adding more dates and events to the social studies syllabus; the science curriculum expands as researchers identify new bacteria and viruses, as well as comets on collision courses with planets. New units on parenting, AIDS awareness, drugs, computer literacy, multimedia technology, and citizenship are constantly being added to the school curriculum. Additionally, business, religious, political, and social organizations are demanding more access to schools and students. Educators are overwhelmed and frustrated as they try to implement ambitious goals, complete expanding curriculum requirements, and accomplish more complex objectives with “less and less time,” while also trying to be sensitive to the national educational reform movement and the public's demands for accountability. Compounding these problems experienced by educators, economic crises have forced a reduction in personnel, thus increasing the job demands on existing administrators and faculty. Moonlighting, overloads, and overtime have now become typical for academic staff. Emotional fatigue and burnout reflect the psychic toll on educators. Ignorant of the negative impact of the modern conception of time on the human psyche, researchers continue to emphasize methods of restructuring, managing, or utilizing time to ameliorate the constraints experienced by contemporary educators.²

The Report of the National Commission on Time and Learning entitled *Prisoners of Time* (U.S. Government Printing Office, 1994) challenges educators to fix the design flaw in the way schools are organized, as well as the way time is

²Research on linear progress and sequential development are coming under increasing scrutiny by postmodern scholars. Rational and scientific studies of decontextualized student behaviors and/or test results that have driven educational research and promised inevitable progress in the task of human betterment and school improvement have been deconstructed. The modernist attempt to measure complex systems with an eye toward generalizable conclusions is being challenged. Postmodernists

allocated for academic purposes.³ The Report suggests that educators use time in new and better ways: “We recommend that state and local boards work with schools to redesign education so that time becomes a factor supporting learning, not a boundary marking its limits” (p. 31). The assumption in this document is that if “world-class standards in core academic areas” (p. 30) are established, then time can become a flexible resource. In order to reverse the limitation of fixed time, *Prisoners of Time* envisions a fixed curriculum where time becomes the flexible variable. However, in both the current organizational structure of schools and proposed reforms, curriculum and time remain quantifiable objects capable of external manipulation. The document concludes: “American students

deconstruct these grand narratives of progress, arguing that historical outcomes are produced that run counter to the promises of linear progress and the emancipation they espouse. Jean Lyotard (1992), for example, writes:

In the course of the past fifty years, each grand narrative of emancipation — regardless of the genre it privileges — has, as it were, had its principle invalidated. All that is real is rational, all that is rational is real: “Auschwitz” refutes this speculative doctrine.... All that is proletarian communist, all that is communist is proletarian: “Berlin 1953,” “Budapest 1956,”... refute this doctrine of historical materialism.... All that is democratic is by the people and for the people, and vice versa: “May 1968” refutes the doctrine of parliamentary liberalism.... Everything that promotes the free flow of supply and demand is good for general prosperity and vice versa: “Crises of 1911 and 1929” refute the doctrine of economic liberalism, and the “Crisis of 1974-1979” refutes the Post-Keynesian modification of that doctrine. (p. 40)

Lyotard provides a critique of the gap between the modern project of linear progress, reason, and emancipation in which humanity seeks to master its own destiny and historical condition. The failure of modernity, like the failure of the Report of the National Education Commission on Time and Learning, *Prisoners of Time* (U.S. Government Printing Office, 1994), to be discussed in this article, and the failure to fulfill the promises of all grand narratives is not the result of incomplete or inaccurate application — that is, the failure to pursue modernity to its end — but rather is due to the contingency, irony, and complexity of historical (and educational) events that escape the clutches of reason, rationality, segmentation, and linear progress. For Lyotard, advances in science — and, for me, advances in time management and related studies of time and learning — are only adding to the historical problems that destroy the modern project — and contemporary schooling — while giving the impression of completing it. Thus, *Prisoners of Time* may appear “reasonable” on first reading. However, Lyotard and postmodern scholars remind us that the notion of segmentation and linear progress over time is no longer tenable.

The notion of a grand narrative of educational progress is likewise being deconstructed in postmodern curriculum literature (Doll, 1993; Lather, 1991; McLaren, 1993; Slattery, 1995a; Usher & Edwards, 1994). Isolating a single curricular practice, discipline methodology, or organizational structure and then assuming that its perceived success can be transferred to any other schooling context is challenged in this literature, instead, the complexity of each unique milieu is celebrated. No longer can we study educational issues in isolation—especially time and learning — and assume that steady progress will result. In fact, studies like *Prisoners of Time* only perpetuate the futility of grand narratives of modernity and delay an engagement with issues of complexity and process.

⁵The Education Council Act of 1991 of the United States Congress through Public Law 102-62 established the National Education Commission on Time and Learning as an independent advisory body charged with developing a comprehensive review of the relationship between time and learning in U.S. schools. The nine-member commission was appointed by the President of the Senate, the Speaker of the House of Representatives, and the Secretary of the U. S. Department of Education. John Hodge Jones, Superintendent of Murfreesboro Schools in Tennessee, served as commission chairperson. The commission included school board members, principals, a college president, a state senator, a university scholar, a director of a business organization, and a superintendent. The commission visited nineteen schools, interviewed over 150 teachers, administrators, parents, and students, traveled to Japan and Germany for fact-finding visits in schools and research institutions, and met in Washington, DC, eighteen times over a 24-month period. The findings were presented in the report entitled *Prisoners of Time* in April of 1994.

will have their best chance at success when they are no longer serving time, but when time is serving them” (p. 44). This perspective is also summarized in a Goals 2000 Community Update: “Finding more and better ways to use time and learning must be at the heart of education reform efforts. . . . Schools and communities need to rethink how time is used during the academic day and how schools might institute extended day and extended year programs” (U.S. Department of Education, 1994, p. 1). As U.S. Secretary of Education Richard Riley, citing *Prisoners of Time*, contends, “Both learners and teachers need more time — not to do more of the same, but to use time in new, different, and better ways. The key to liberating learning lies in unlocking time” (U.S. Government Printing Office, 1994, p. 1). Riley’s contention reflects the modern philosophy’ of time and curriculum that permeates contemporary educational literature.

The enslavement to time can only be appropriately addressed by first challenging the underlying modern assumptions about time itself. Postmodernism offers one challenge to these assumptions. Time is understood as internal experience, becoming, and process. John Dewey (1938) writes:

The ideal of using the present simply to get ready for the future contradicts itself. It omits, and even shuts out, the very conditions by which a person can be prepared for his future. We always live at the time that we live and not at some other time, and only by extracting at each present time the full meaning of each present experience are we prepared for doing the same thing in the future. (p. 49)

The postmodern challenge is to integrate the past and the future into the existential present — or “presence” as Martin Heidegger (1972) writes — allowing the process of becoming, rather than artificial demands of clocks and linear sequences, to dominate our personal and professional lives. In one sense, this understanding is reminiscent of many indigenous and premodern societies that reject the notion of historical, concrete time in favor of a return to the mythical time of the beginning of the cosmos, or the “Great Time.”⁴ The postmodern phenomenology of time is more than a mere rejection of historical time and Aristotelian notions of time as a series of “nows” in succession. Time, in the Heideggerian sense, is presence; temporality, in the Whiteheadian sense, is process; education, in the Deweyan sense, is experience.

Dwayne Huebner (1981) has investigated time and curriculum theory and reconceives time as totality: “I mean seeing the past in terms of the totality, the present in terms of the past and the future, and recognizing that contradictions are also a mode of relationship that offers much understanding of the present moment as cause-and-effect relationship” (p. 136). Huebner insists that time is

⁴The contribution of indigenous and non-Western societies and philosophies to the understanding of time can neither be dismissed nor underestimated. Premodern understandings of time, cyclical temporal dimensions, reincarnation, rhythms of nature, mythical time, duration of time, the ever-lasting present, eternal return, and similar themes provide a sharp contrast to Western linear time. The study of indigenous and non-Western philosophies and practices is important; however, it is beyond the scope of this article to review this literature. Sources that I have found particularly inspiring include Mary Aswell Doll (1995), Douglas Givens (1977), Stephen Toulmin (1982b), Mircea Eliade (1959), Dwayne Huebner (1975), D. T. Suzuki (1968), and William Pinar (1988).

Indigenous societies transmit events and processes through oral traditions that are recounted neither in terms of previous time nor future time. Rather, these languages express an ever-lasting

not a dimension in which we live, nor a sequence of events on a trajectory from past to future. We do not simply look back on the past and await the future. Huebner (1975) contends, “The very notion of time arises out of man’s existence, which is an emergent. The future is man facing himself in anticipation of his own potentiality for being” (p. 244). Frederick Kummel (1965) echoes Huebner’s sentiment:

Generally, the future represents the possibility, and the past the basis of a free life in the present. Both are always found intertwined with the present: in the open circle of future and past there exists no possibility which is not made concrete by real conditions, nor any realization which does not bring with it new possibilities. This interrelation of reciprocal conditions is a historical process in which the past never assumes a final shape nor the future ever shuts its doors. (p. 50)

Alfred North Whitehead (1933) is even more insistent that time be understood as process. He writes:

Cut away the future, and the present collapses, emptied of its proper content. Immediate experience requires the insertion of the future in the crannies of the present.... Each present occasion prehends the general metaphysical character of the universe, and thereby it prehends its own share in that character. (pp. 193—194)

In addition to Heidegger, Huebner, Friedrich Kummel, and Whitehead, many philosophers, educators, and physicists have wrestled with this notion of simultaneity and time, notably Henri Bergson (1946), who spoke of time as “duration.” Missing from the Report of the National Educational Commission on Time and Learning (U.S. Government Printing Office, 1994) is a reflection on this body of literature that supports proleptic, phenomenological, process-oriented, and integrated views of time. Why is this literature ultimately of any importance to educators who, like the prisoners of time characterized in the 1994 Report, are under stress from time constraints? Huebner (1975), perhaps, explains it best when he writes:

Education recognizes, assumes responsibility for, and maximizes the consequences of this awareness of man’s temporality. The categories of learning, goal, purpose, or objective point to this awareness. Their present inadequacy is not a consequence of their inherent limitations; but, rather, the educator’s failure to recognize these limitations. He expects them to perform work for which they are not designed. The

present tense. Kamake Highwater (1981), in *The Primal Mind* provides a concrete example that amplifies premodern concepts of time:

Primal people are supernaturalists, and for them, time is extraordinary. Among the Australian aborigines, for example, there is both the immediate and ordinary time of daily existence, as well as an experience they call “dreamtime” — which includes not only the events of our sleeping state, but also those things we anticipate. envision, imagine. intuit, and conceive. The aboriginal “dreamtime” is the solution to the Western questions asked by the late Hannah Arendt: Where are we when we think? It is a question answered without even being asked. (p. 89)

Highwater continues by contending that dreamtime is sacred time in the realm of myth and inspiration. Aboriginal dreamtime reminds us that simultaneity of time — past, present, and future —has deep cultural roots that provide insight for contemporary proleptic proposals for time and learning, such as the proposal in this article.

challenge to the educator is to find a way to talk about man's temporality which will increase his professional power in the world. (p. 244)

It is this search for new understandings of time and temporality that inspires many postmodern education scholars.

The postmodern conception of time has been popularized in Michael Crichton's *Jurassic Park* (1990). The scientist and chaos theorist in the novel explains the modern dilemma concisely. Crichton's character Malcolm contends:

We do not conceive of sudden, radical, irrational change as built into the very fabric of existence, yet it is. And chaos theory teaches us that straight linearity, which we have come to take for granted in everything from physics to fiction, simply does not exist. Linearity is an artificial way of viewing the world. Real life isn't a series of interconnected events occurring one after another like beads strung on a necklace. Life is actually a series of encounters in which one event may change those that follow in a wholly unpredictable, even devastating way. That's a deep truth about the structure of our universe. But, for some reason, we insist on behaving as if it were not true. (p. 171)

Educators and researchers envision reality as linear when they conceive of time as an independent variable to be manipulated to improve educational outcomes, for example, within quantitative studies examining timed tests, contact minutes, or time on task in the classroom that purport to demonstrate the educational effectiveness and efficiency of specific treatments and methodologies. Postmodernism challenges this assumption and argues that our very understanding of time must first change before the stress of time constraints can be ameliorated and the educational process will become meaningful and consequential in the lives of teachers and students. Let us examine an example of how this philosophy might impact educators.

Time Management and Chaos in the Infinite Cosmos

Several years ago, while working as a district administrator and educational consultant, I was asked to conduct a one-hour seminar for the Louisiana Leadership Academy, an ongoing certification program for principals. The designated topic was "time management." For the next several weeks I was preoccupied with and anxious about this presentation. I felt certain that the principals would be expecting a practical program with suggestions for improving their organizational skills in order to reduce the pressure of their demanding schedules, and I was not sure of the best method for conducting the seminar in order to address their very real day-to-day concerns.⁵

⁵When the date for my seminar on time management for school administrators arrived, I was assigned the last afternoon session. The back of the room was filled with exhausted administrators who had been required to give up a Saturday for "leadership points" Some administrators left my seminar disappointed; they did not receive a list of new time-saving practices to organize their professional lives. Others left the seminar refreshed; they reported on their evaluations and in informal comments that they experienced an understanding of time that would change their conception of learning and school administration.

Frustrated and uncertain, I immersed myself in time management literature: *Seven Habits of Highly Successful People* by Stephen Covey (1989); *The One Minute Manager* by Kenneth Blanchard and Spencer Johnson (1981); *Organize Yourself* by Ronnie Eisenberg (1986); and the classic ethnography used in many leadership courses, *The Man in the Principal's Office* by Harry Wolcott (1973). I reviewed the time management methods that I had used myself as a principal: organizational flow charts; five-year plans; delegation to department heads; computerized appointment schedules; comprehensive and detailed handbooks; a binder filing system; informative newsletters; and master calendars. As I prepared for this seminar, all of the exhaustion of my career as a principal came rushing back into my memory. I remembered that no matter how well a school was organized and managed, the unexpected and unpredictable was the daily norm. I became exhausted remembering these incidents and the “last minute” adjustments that were a constant part of school administration. I also remembered the barrage of complaints, especially from teachers, whenever the school schedule was disrupted. Academic time was viewed by teachers as a precious commodity to be allocated judiciously and interrupted sparingly.

School administrators know that randomness and chaos more accurately define their lives than predictability and stability, and yet modern schools remain organized around the modern conception of time as controllable and manageable. As I was preparing for this time management seminar, I also happened to be reading an article from the journal *New Scientist*. This article led me to several books on chaos theory and the new sciences, including *The Tao of Physics* by Fritjof Capra (1975); *The Reenchantment of Science: Postmodern Proposals* edited by David Ray Griffin (1988); *Order Out of Chaos: Man's New Dialogue with Nature* by Ilya Prigogine and Isabelle Stengers (1984); *Chaos: Making a New Science* by James Gleick (1987); *A Brief History of Time: From the Big Bang to the Black Holes* by Stephen Hawking (1988); *The Cosmic Blueprint: New Discoveries in Nature's Creative Ability to Order the Universe* by Paul Davies (1988); and, most significantly, *The Structure of Scientific Revolutions* by Thomas Kuhn (1970). The contrast between this set of readings and the time management literature was dramatic and disturbing.

Kuhn reminded me that one of the tasks of the historian of science is to “describe and explain the congeries of error, myth, and superstition that have inhabited the more rapid accumulation of the constituents of the modern science text” (1970, p. 2). The more I reflected on chaos theory, and the more I recognized the problematic nature of organization in modern schooling, the clearer it was that I would have to change the focus of this time management seminar. Reading the following conclusion in Kuhn's book confirmed my conviction: “In both political and scientific development the sense of malfunction that can lead to crisis is a prerequisite to revolution” (p. 92). The sense of malfunction and crisis in education was abundantly clear — financial instability, economic inequality, legal challenges, teacher burnout and turnover, critical reports from the political left and right, and violence on campuses. Thus, in my mind, Kuhn's hypothesis raised the possibility of a paradigm shift in the organi-

zation and curriculum of schools. Chaos theory provided a metaphor, as well as a new scientific basis, for a different view of time and learning.

Chaos theory, according to William Doll (1993), gives meaning and substance to the language of disequilibrium, reflective intuition, surprise, puzzlement, confusion, zones of uncertainty, non-rationality, and metaphoric analysis. Doll (1993) writes, "Metaphoric analysis is hardly possible within a model structured around behavioral objectives, competency based performance, accountability, mastery learning, and effective teaching" (cited in Caine & Caine, 1991, p. 19). It is the very disequilibrium itself that provides opportunities for creative tension and self-reflection. "Chaos" was first coined by physicist Jim Yorke, who writes, "We tend to think science has explained how the moon goes around the earth. But this idea of a clocklike universe has nothing to do with the real world" (cited in Briggs, 1992, p. 12). John Briggs (1992) describes chaos as a natural state of the universe, and he uses weather as an example: "With its variability, general dependability, and moment-to-moment unpredictability, weather infiltrates our schedules, sets or undermines our plans, affects our moods, and unites us with the environment and each other. Weather is also an example of a mysterious order in chaos" (p. 13). Using weather patterns as a basis of study, Edward Lorenz discovered a disturbing fact while working at MIT in 1961. He realized that the mere accumulation of more information about variables related to the weather, such as wind speed, humidity, temperature, lunar cycles, and even sunspots, does not help to increase the accuracy of long-range weather forecasts. Dynamic and complex systems like weather, he discovered, are composed of many interacting elements, and the slightest perturbation in any one of these elements may have a significant impact on future patterns. Following Lorenz, researchers have examined all dynamic systems, from the human brain to electrical circuits, for evidence of chaos. This is particularly evident in the curriculum and the classroom, where chaos theory and complexity can help us to understand the postmodern vision that challenges the notion of the static and controllable universe of classical physics.

In chaos theory, the traditional social science approach to research is challenged; complexity replaces certainty. Ilya Prigogine and Isabel Stengers (1984) have demonstrated that systems in equilibrium and disequilibrium behave differently, and that order can emerge out of chaos. James Gleick (1987) and Paul Davies (1988) contend that an emerging science of complexity is built, in part, on the fact that hidden in apparent chaos are complex types of order. This is true not only in weather patterns, but also in the classroom, where a daydreaming student may be accused of being "off task" when actually he or she could be very much engaged in complex levels of reflection and mental investigation. The postmodern curriculum encourages chaos, non-rationality, and zones of uncertainty because the complex order existing in classrooms and in human persons is the place where critical thinking, reflective intuition, and global problem-solving will flourish. The standardization of rote memorization, conformity, control, and time management follow from the faculty psychology movement — in which the mind was regarded as a muscle to be exercised by memorization and recitation — and the scientific management movement, which restricts learning to a

one-dimensional level imposed uniformly upon students and teachers (Pinar, Reynolds, Slattery, & Taubman, 1995). One way for educators to move away from standardization into complexity and this new zone of cognition is to adopt a postmodern vision of time.

How is this postmodern vision possible within a bureaucratic paradigm committed to the principles of modernity? James Lovelock (1979), in his Gaia hypothesis, provides an example based on the image of the Earth from the moon:

The new understanding has come from going forth and looking back to the Earth from space. The vision of that splendid white flecked blue sphere stirred us all. It even opened the mind's eye, just as a voyage away from home enlarges the perspective of our love for those who remain there.... We now see the air, the ocean and the soil are much more than mere environment for life; they are a part of life itself. ... There is nothing unusual in the idea of life on Earth interacting with the air, sea and rocks, but it took a view from outside to glimpse the possibility that this combination might constitute a single giant living system. (cited in Tucker, 1993, p. 11)

Lovelock contends that the vision of the Earth from the moon began a paradigmatic change in the relationship between humans and the environment. In the same sense, a vision of education from the perspective of the new sciences, such as chaos theory, can create a paradigm shift in our schooling practices that will replace the linear, objective, and time management models that have dominated our thinking. If this analysis seems to be an exaggeration, consider the emphasis we place on managed time in schools, from class schedules and bells to timed tests and examinations. Time is understood to exist as a metaphysical reality, capable of being managed and organized for maximum efficiency.

Newtonian models and mechanistic systems on which modern educational paradigms are constructed ignore the developments in the sciences that indicate that social systems are interactive and open-ended, and that time is an integral part of reality. Space and time are both entities that are interwoven into matter. Davies (1990) observes, "Space and time are a part of the plan of the physical universe; they are not just the stage on which the great drama is acted out, but are a part of the cast. We have to talk about the creation of space and time as well as matter and energy.... The world was made with time and not in time" (p. 11). Davies provides the basis for our understanding time as socially constructed rather than immutable and fixed, a concept integral to postmodern theory. The concept of the social construction of time follows from relativity. Albert Einstein set the stage for understanding space-time with his theory of relativity and his writings on electromagnetic radiation of atomic phenomena in quantum theory, both published in 1905. In his special theory of relativity, Einstein posited nature's inherent harmony, and he sought to find a unified foundation of physics by constructing a common framework for the two theories of classical physics: electrodynamics and mechanics.⁶

⁶Albert Einstein had both a special and a general theory of relativity, which he explained in a popular exposition entitled *Relativity: The Special and the General Theory* (Einstein, 1961). In the note to the fifteenth edition of this book, Einstein writes about his modification of his ideas on space resulting

Relativity unified and completed the structure of classical physics, and it also drastically changed traditional concepts of space and time. The foundation of the Newtonian worldview became suspect. In relativity, space is not three-dimensional and time is not a separate entity; both are intimately connected in a four-dimensional continuum called space-time. In this continuum, it is impossible to understand time outside of the context of space, and vice versa. Fritjof Capra (1975) explains:

There is no universal flow of time, as in the Newtonian model.... All measurements involving space and time thus lose their absolute significance. In relativity theory, the Newtonian concept of an absolute space as the stage of physical phenomena is abandoned, and so is the concept of an absolute time. Both space and time become merely elements of the language a particular observer uses for describing the observed phenomenon. (pp. 50—51)

With his proposal in 1915 of the general theory of relativity, Einstein expanded on the special theory of relativity to include gravity. This general theory is widely accepted in the study of astrophysics and cosmology. Because gravity in the general theory has the effect of “curving” space and time, and thus abolishes the concept of absolute time and space, Capra (1975) concludes, “Not only are all measurements involving space and time relative; the whole structure of space-time depends on the distribution of matter in the universe, and the concept of ‘empty space’ loses its meaning” (p. 52). Einstein set the stage for the emergence of the new physics and new ways of understanding the universe, which inform chaos theory and complexity in the postmodern era. Time can no longer be separated from space. The past and future cannot be separated from the present. The curriculum cannot exist in an objective vacuum outside of the context of human consciousness. Curricular goals and objectives can never create meaning; meaning is constructed within the learning context. Historical

from the influence of relativity: I wished to show that space-time is not necessarily something to which one can ascribe a separate existence, independently of the actual objects of physical reality. Physical objects are not *in space*, but these objects are *spacially* extended. In this way the concept of empty space loses its meaning” (p. iv) (italics in original).

My use of Einstein’s theories of relativity reflect my understanding and interpretation of space-time as an integral dynamic in the social construction of time that can lead to a radically new way of thinking about time and learning. This is similar to the conclusion of Joe Kincheloe, Shirley Steinberg, and Deborah Tippins (1992) in their recent book on Einstein entitled, *The Stigma of Genius: Einstein and Beyond Modern Education*, where the authors contend:

Statistics and psychometric research have failed in their attempts to produce knowledge germane to the lives of educational practitioners. Because not all educational questions lend themselves to quantification, such methods are limited to particular types of questions — often questions involving the most trivial aspects of schooling [e.g., time on task, school calendars, instructional minutes]. Questions of consciousness, of power, of self-production almost always will be ignored by empirical research. If we have any hope of understanding the impact of schools on our students, the roles schools play in the construction of their consciousness, the relationship between school and society, we will have to expand our research vocabulary. (p. 238)

Our understanding and vocabulary of time must also be expanded, especially as relativity might inform our perception of social construction, process philosophy, complexity in the classroom, and other issues addressed in this article.

interpretation, scientific hypotheses, literary analysis, and all other curricular investigations cannot be established outside of the context of each unique educational setting. Thus, the curriculum is actually the process of understanding and not simply the scope and sequence materials dictated by district or textbook authorities (Pinar et al., 1995).

Complex systems can improve in the midst of turmoil. Curriculum models based on modern visions of Newtonian physics attempt, like a clockwork universe, to impose uniformity. Every lesson, every goal and objective, must conform to predetermined principles, cultural forms, social structures, or curricular guides. The postmodern curriculum, on the other hand, is based on a new science: a complex, multidimensional, kaleidoscopic, relational, interdisciplinary, and metaphoric system. These complex systems in science and education challenge the Second Law of Thermodynamics, which sees the system as running down as entropy increases. Davies contends that the Second Law of Thermodynamics is not invalid, but rather inadequate because it applies only to closed systems that are isolated from their environments. Davies (1990) writes, "When a system is open to its environment and there can be an exchange of matter, energy, and entropy across its boundaries, then it is possible to simultaneously satisfy the insatiable desire of nature to generate more entropy and yet have an increase in complexity and organization at the same time" (p. 10). Thus, the universe as a whole can be seen as a closed system, while subsystems of the universe remain open to their environments. This open systems cosmology is a crucial element in postmodern proleptic understandings of time: radical eclecticism necessitates an openness to diverse subcultures and environments that can increase in complexity. In the same sense, the curriculum is now seen as an open system that exists in complexity. After observing open and closed systems and their environments, the French Jesuit paleontologist Pierre Teilhard de Chardin wrote, "We are now inclined to admit that at each further degree of combination something which is irreducible to isolated elements emerges in a new order.... Something in the cosmos escapes from entropy, and does so more and more" (cited in Davies, 1990, p. 10).

Something in the classroom and in the curriculum must also escape from entropy. Doll (1993) contends that just as the physical sciences in the seventeenth century led society into modernity, the new physics is ushering in post-modernity. Doll turns to Werner Heisenberg's "Uncertainty Principle" to support his claim. In classical physics, scientists believe that if they can improve their measurements and calculate with infinite precision, then absolute understanding of the universe and its physical properties — including time — would follow. Heisenberg disagreed, and he demonstrated that there is a finite limit to the accuracy of any instrument or measurement because the act of measuring changes the outcome of the measurement process itself. Educators have always instinctively known this to be true. The presence of an observer in the classroom measuring effective teaching changes the dynamics of the lesson, impinges on the attitudes of the students and teacher, and dramatically alters the lesson being observed.

The Heisenberg Uncertainty Principle examines the subatomic world and contends that if we choose to measure one quantity (e.g., the position of the electron), we inevitably alter the system itself. Therefore, we cannot be certain about other quantities (e.g., how fast the electron is moving). Since an interaction is involved in every measurement, and since measurements are involved in observations in modern science and education, some physicists contend that the act of observation changes the system. While this is significant in the interaction of particles in quantum physics, a few scientists are also beginning to extend this principle to the realm of consciousness as well. Further, since some particles can not be directly observed, they are called “virtual” instead of “real.” Thus, the universe as we know it is ultimately based on chance and randomness at the subatomic level. But how can quantum physics inform our understanding of time and learning?

In the postmodern curriculum, it does not make sense to evaluate lessons, students, and classrooms based on predetermined plans, outcomes, or standards, for like the elusive electron, relationships and potentialities explain their existence — and not predetermined structure. Capra (1975) explains:

The exploration of the subatomic world in the twentieth century has revealed the intrinsically dynamic nature of matter. It has shown that the constituents of the atom, the sub-atomic particles, are dynamic patterns which do not exist as isolated entities but as integral parts of an inseparable network of interactions. These interactions involve a ceaseless flow of energy manifesting itself as the exchange of particles; a dynamic interplay in which particles are created and destroyed without end in a continual variation of energy patterns. The particle interactions give rise to the stable structures which build up the material world, which again do not remain static, but oscillate in rhythmic movements. The whole universe is thus engaged in endless motion and activity; in a continual cosmic dance of energy. (p. 211)

Reading this passage reminds me of the motion and energy of classrooms and schools. If the universe on the quantum level and on the cosmic level is not rigid and fixed, why does our vision of curriculum, time, learning, and research remain fixated on the metaphor of classical physics? Doll (1993) contends that our current school curricula are not merely based on a scientific-efficiency model (Kliebard, 1986), “but have their foundations in seventeenth- to nineteenth-century modernist thought” (p. 158). The “naturalness” of this thought needs to be questioned, for what is self-evident in one paradigm becomes absurd in another. Doll (1993) continues, “In an intellectual time frame, Copernicus and Einstein represent the extreme boundaries of the modern paradigm, with Descartes and Newton as the medians. But, of course, as with any extremes, Copernicus and Einstein also represent the bridges between paradigms, one with the pre-modern the other with the post-modern” (pp. 21—22).

What is this postmodern paradigm in the sciences that is challenging the assumptions of time in educational research? David Ray Griffin (1988) believes that it is a reenchantment. At the root of modernity and its discontents is a disenchanting and mechanistic worldview that denies nature the qualities of sub-

jectivity, experience, and feeling. Griffin (1988) writes, “Because of this denial, nature is disqualified — it is denied all qualities that are not thinkable apart from experience” (p. 2). A postmodern, organic understanding of life provides the basis for a reenchantment of science that will support a new vision of time and the cosmos. Stephen Toulmin (1982a), in *The Return to Cosmology: Postmodern Science and the Theology of Nature*, contends that we must think about the cosmos as a single integrated system where all things in the world — human, natural, and divine — are related in an orderly fashion. This cosmic interrelationship — quantum interconnectedness — is central to the postmodern curriculum as well. Integrated learning, holistic models, and authentic assessment are the natural outgrowth of the new cosmic vision. David Bohm (1988) explains:

Because we are enfolded inseparably in the world, with no ultimate division between matter and consciousness, *meaning and value are as much integral aspects of the world as they are of us*. If science is carried out with an amoral attitude, the world will, ultimately, respond to science in a destructive way. Postmodern science must therefore overcome the separation between truth and virtue, values and fact, ethics and practical necessity. To call for this non-separation is, of course, to ask for a tremendous revolution in our whole attitude to knowledge. But such a change is necessary, and indeed long overdue. Can humanity meet in time the challenge of what is required? (pp. 67-68, emphasis in original)

Likewise, can educators meet the challenge of what is required, especially by reconceptualizing time as non-separation? Why is it so difficult to move beyond the modern paradigm to this postmodern vision? One reason is our modern attachment to practical solutions to resolve immediate problems. *Prisoners of Time* is an obvious example of this phenomenon, as the Report calls for simply altering time schedules, creating an academic core, and adding minutes and days to the current school calendar to solve our educational and social problems. Classical physics provides the structures for addressing the need for practical solutions to contemporary problems by reinforcing the belief that mechanisms exist that control the universe, independent of time, place, or context. Thus, in our daily experience, we can function in what Capra (1982) has called the “zone of middle dimension,” where classical physics and linear time are functional and sometimes useful. On a daily basis, we can deliberately remain oblivious to quantum and cosmic phenomena. Unaware of this dimension of space-time, we can convince ourselves that classical physics, traditional time management practices, extended school days or school calendars, and modern curriculum development goals and paradigms, if perfected, can solve the epistemological, ecological, sociological, and educational crises of society. In the zone of the middle dimension, we fail to recognize complexity and the interrelatedness of actions. This failure is the real tragedy perpetuated by *Prisoners of Time*.⁷

⁷The concept of the zone of the middle dimension is particularly helpful in trying to explain why educational reforms and reports such as *Prisoners of Time* continue to dominate research and practice. The cultural conditioning of the modern premise is pervasive; envisioning postmodern alternatives is challenging. The zone of the middle dimension appears to be secure — the status quo is safe. Therefore, we continue in our futile attempts to manage time, delegate time, and manipulate time as

In support of postmodern concepts, contemporary mathematics and physics turn to fiber-bundle theory and string theory in an effort to develop a unified field theory. Theoretical physicists are writing about higher dimensions of space, sometimes called inner space or hyperspace, which require new ways of thinking. Saul-Paul Sirag (1992) writes, “In some cosmic sense there really is only one consciousness.... Hyperspace itself is consciousness acting on itself, and space-time is just kind of studio space for it to act out various things in.... Our internal experience is not just connected to the hyperspace, it is an intimate part of the hyperspace” (pp. 108—109). As computer technology expands, the implications of hyperspace no longer seem so unrealistic! Postmodernism challenges us to enter this new zone of cognition and recognize hyperspace. While the “zone of middle dimension” may have been useful in the development of technology and time in the modern era, the negative consequences of ignoring the quantum and cosmic dimensions of the physical universe threaten the survivability and viability of life. Postmodern visions of hyperspace and space-time must be infused into our understanding of schooling. Documents like *Prisoners of Time*, despite any practical support they may offer in the short term, hinder the emergence of the new paradigm by ignoring the new sciences and remaining fixated on the zone of middle dimension.

What is this new conception of curriculum as chaos? First, it is not destructive and purposeless. Doll (1993) explains chaos concisely in reference to a phase-space diagram of a nonlinear system, commonly called a Lorenz attractor (after Edward Lorenz, who first used this type of graph to show a systems view of weather patterns):

First, chaos is not a wild, random abandon. Far from it; the pattern is quite orderly but complex. Chaos refers to this complex ordering. It is not possible to predict with complete accuracy where the next point on the trajectory will be (no two trajectories repeat exactly), but neither do the points fly beyond the bounds of the diagram. Two, the trajectories have both “bounds” and a center “attractor” area. Neither of these are precisely defined, but as the trajectories fly out from the center area they are attracted back, only to fly out again. The system, in its dynamic tension between moving out and back, has an overall coherence. Three, on occasion, any given point on the trajectory will “flip over” from one “owl’s eye” or “butterfly wing” to the other. These “flip over” events are certain to happen over time but unpredictable for any given moment. One cannot say when such a flipping will occur, only that it will. The pattern is random, but it is a pattern. (Doll, 1993, p. 93)

If we substitute classroom for phase-space diagram, student experience for flip-over events, and dynamic classroom interchange for chaos, then chaos in the classroom becomes tangible. First, there is a central attractor — a thematic unit, an experiment, or a short story. Second, discussion moves back and forth from

an independent and static variable. The failure of the grand narratives of modernity (Lyotard, 1992), however, indicates that the zone of the middle dimension is not as safe and secure as it may appear. A reconceptualization of time and a shift from the limitations of middle dimension thinking is urgently needed. The crisis and frustration in schooling is *not* a time management problem. I contend that the philosophy of time in the zone of the middle dimension is sterile and a process cosmology with a postmodern vision is imperative (Slattery, 1995a).

one point to another without predictability — but the questions and comments are all contained within the framework of the lesson theme. Third, flip-over events in the classroom are unpredictable and may lead to a dynamic integration of new ideas. In summary, postmodern visions of space-time and hyperspace challenge the static clockwork universe of classical physics, which was developed before thermodynamics and quantum mechanics. They also challenge the picture of the cosmos as nothing but a random collection of particles acted upon by blind forces and capable of being controlled by artificial structures. In the classical formulation, time has no real significance because the state of the universe at all times and in all places is precisely determined. This is a sterile cosmology, in which time is just a parameter and does not offer any opportunity for change, flux, unfolding, or chaos. This same conception of time underlines *Prisoners of Time*, which supports an ideology of false security because it assumes that changes such as longer school days, an extended school year, and additional academic contact hours will eliminate the chaos of modern schooling and ameliorate time stress experienced by educators. In the postmodern sense, time management is impossible because the universe is not created in time and space but with time and space. Chaos and complexity are the natural state of the cosmos. This must be recognized, or popular conceptions of time and learning will remain limited and potentially destructive by perpetuating a narrow cosmology.

Proleptic Understandings of Time

As we have seen above, postmodern understandings of time challenge the linear arrow and progressive sequence of modernity. Time is not a linear trajectory where new and modern understandings are better than the outdated past. The following authors support a movement toward a proleptic understanding of time:

We are a people in whom the past endures, in whom the present is inconceivable without moments gone by. The Exodus lasted a moment, a moment enduring forever. What happened once upon a time happens all the time.

— Abraham Joshua Heschel (1983, p. 1)

There is no such thing really as was, because the past is.

— William Faulkner (1942, p. 288)

The present holds within itself the complete sum of existence, backwards and forwards, that whole amplitude of time which is eternity.

— Alfred North Whitehead (1929, p. 14)

To impose upon becoming the character of being — that is the supreme will to power... . That everything recurs is the closest approximation of a world of becoming to a world of being.

— Friedrich Nietzsche (1967, p. 617)

The preceding thoughts create an image of time and space that is very different from the irreversible and progressive sequence of modernity. Postmodernism reconceptualizes time as duration; post-structuralism as eternal recurrence. On the one hand, time is a duration where the past is embedded in the present, as Henri Bergson (1946) contends. On the other hand, for Nietzsche (Hatab, 1978), nothing abides, but all returns to be destroyed again and again. The process of becoming endures, but nothing in that process endures, except as repeated enduring states. Modern notions of being, Nietzsche (1967) contends, have arisen from discontent with becoming. Eternal recurrence is more than “mere” becoming, it reveals the eternal value of every moment. In both duration and eternal return, Bergson and Nietzsche reject modern notions of linear time in favor of the process of becoming, which is so integral to postmodernism.

The crisis of modernity arises precisely because history and time are conceived of as linear, and thus capable of being broken. If the present can be broken, it can also be conceived of as degraded and meaningless. Then the modern pathos is projected backward and forward, projecting this vision on every present —past, present, and future. Postmodernism reconnects space-time with individuals and society in order to transcend this modern, embedded pathos. James Macdonald (1988) writes, “The impetus for choosing and becoming in us is not something that need be externally imposed; but it is rather a process of helping others see possibilities and helping them free themselves from going beyond this present state of embedded existence” (p. 163). Postmodern schooling must reconnect students and teachers, space and time, meaning and context. knowing and the known, humanities and sciences, and especially past, present, and future. What modernity has rent asunder, postmodernity reevaluates as radically eclectic by embracing the fragmented beauty. Postmodernism celebrates the process of becoming and the interdependence of eternal becoming.

This perspective implies that dualistic thinking, especially as it separates time into linear fragments, must be vigorously challenged in postmodern schooling, and apparent opposites must be reintegrated into a creative tension of complementary and multifaceted dimensions of the whole as in the yin and yang of Eastern thought. The interconnectedness of individual experiences in a global context that engenders cosmic understandings are dramatically changing human consciousness. Poetry is the natural response to the mystery of the universe, not measurement and codification. Poetry, narrative, and art offer understandings of the self as continuously being reconstructed in new and ironic ways in every social and cultural milieu. In order to understand knowledge, we must experience intimacy. Biblically, one meaning of to “know” is to have intercourse. In this sense, the knower cannot be separated from the known and meaning cannot be separated from the context that gives rise to the meaningful experience. They must engage in a cosmic intercourse. Educators must reenvision their relationships with students and with each other and begin to find ways to affirm and validate every voice in the school community. The dominant power position of teachers and administrators must be replaced by empowerment models. These

models are not simply site-based management or cooperative learning groups. Rather, the very concept of the self in relation must evolve to a new realm of consciousness. This can be accomplished on all levels of schooling as teachers create empathetic, caring, holistic, and liberating practices. Chaos and uncertainty principles are at work under the surface of our existence, physically, psychologically, and spiritually. In this sense, a “quantum curriculum” (Bernard & Slattery, 1992; Slattery, 1992) is needed to uncover the layers of meaning of the phenomenon that could enrich our lives and our schooling practices. These practices must include attention to aesthetics, hermeneutics, phenomenology, poststructural analysis, multiculturalism, autobiography, theology, historical grounding, a post-liberal and post-revolutionary political theory rooted in community and ecology, chaos theory and the new sciences, and liberatory perspectives of society. These principles are a postmodern response that can form the basis of a new understanding of the meaning of time and learning.

A Proleptic Educational Proposal

Postmodern education must ultimately understand time as proleptic. The past and the future are only comprehensible in the context of the present; they do not exist independently. The artificial bifurcation of time and the linear arrow of time must be challenged.

Educators must infuse the curriculum not only with a proleptic philosophy, but most importantly with a proleptic experience. The proleptic experience requires living historically, firmly grounded in the present. It requires psychological and tangible attention to the contextual needs, visions, struggles, and hopes of each individual, each classroom, and each unique school community. There is no prescriptive “proleptic lesson plan” or “eschatological time management manual.” Any attempt to create such a master plan, metanarrative, or national time and learning curriculum would be the antithesis of the proposal in this article. Rather, the challenge is for educators and students — indeed, all persons

— to enlarge their understanding of historicity beyond the “zone of middle dimension” where events are fixed chronologically and move to a proleptic experience of temporality where the present experience is infused with an evolving interpretation of the past and a socially constructed emergent future. In the classroom, this will necessitate more attention to the cooperative creation of flexible and emerging lessons, rather than unexamined adherence to the linear dictates of scope and sequence guides in textbooks, district guides, or national standards. It will mean emphasis on contextual issues of race, class, gender, economics, ecology and culture in the lives of teachers, students, and school communities. It will require serious reflection, psychological investigation, and open-ended dialogue about past experiences and visions of the future — locally, nationally, globally, and cosmically. Engaging in ecumenical, cooperative, and self-reflective dialogue on the difficult issues of religion and politics in the schooling context is also essential. Avoiding these issues — as in the “hidden” or “null” curriculum (Eisner, 1993) — is a political act in itself (Slattery, 1995b).

Our attitudes and practices must validate the lived experiences and process of growth in each person in the schooling context. Autobiographical narratives, the construction of oral histories, personal journals, and various eyewitness accounts and interpretations must be the focus of the social studies and language arts curricula. Contemporaneous application must direct the math and science classroom, and students must not be told that they will need to know algebra and chemistry after they graduate. In other words, the importance of learning cannot be deferred to a distant future; learning must be meaningful today. Teacher-proof materials must be rejected in favor of teacher and student generated lessons. Recognition of the life story, talents, and contributions of each individual — and not just the popular, athletic, compliant, attractive, or powerful students and teachers — must become a conscious priority. Sensitivity to the process of growth and becoming will be reflected in the way we advertise, discuss, promote, and reward various activities, events, and students.

It is most important for educators and students to come to understand that learning is a lifelong process that is not demarcated by the "completion" of goals, courses, or standards. Learning is timeless; temporality is the process of becoming and not the act of arriving. Any diminishment of the emphasis on measurable time, subject area disciplines in isolation, or time on task would be a welcome shift. We cannot simply rely on the improvement of past curricular practices in sequential, developmental stages or the tinkering of current schooling structures and time schedules to improve learning. Teachers must help students reinterpret their own lives and uncover new talents and creative insights. This necessitates an understanding of knowledge as partial, ironic, and contested. Epistemology must lead to questions, interpretation, and exploration rather than to explanation and memorization in classrooms. In short, historically grounded people must be validated in each schooling context with an eye toward justice, empowerment, participation, and compassion for all. This describes the proleptic experience so desperately needed in our postmodern society.

The proleptic experience seeks to infuse hope into the postmodern vision of schooling by giving meaning and purpose to the present occasions in education, occasions that emphasize the process of becoming rather than the quantification of being. Thus, it is impossible to be prisoners of time any longer, for we are always in the process of becoming.

Why is this proleptic philosophy so important? Students and teachers are limited by the concepts of time perpetuated by modernity. The bifurcated choice of modernity is clear; either choose the apocalyptic vision of many fundamentalist religions and delay all hope to a distant time in the future or after death, or collapse all time into the present for the immediate gratification of the senses, or a political utopia. The first is called futuristic or apocalyptic eschatology because the present is disconnected from the ultimate experience of salvation or utopia.

The second is called realized eschatology because the past and future do not affect the present sense experiences, experiences that supposedly contain the

only metaphysical reality. Do we really believe that since we “only go around once in life” we must “grab all of the gusto” we can get while we can? Both apocalyptic and realized eschatology have deformed consciousness in the modern era by repressing and suppressing the complexity of the human dynamic. Realized eschatology reinforces the addictions and malaise of modern society. Since the present has no meaningful connection to the past or an emergent future, life appears purposeless and thus immediate gratification and self-indulgence dominate consciousness. Suicide and damaging addictive behaviors thrive in this environment.

Humanity desperately needs a postmodern alternative to these two dominant eschatologies that have blurred, and ultimately destroyed, the vision of the eternal recurrence and the interconnectedness of past, present, and future. A proleptic curriculum offers a postmodern vision of justice, complexity, compassion, ecological sustainability, spirituality, and internal relatedness. A proleptic understanding of the integration of time, place, and self is one of the most essential elements of curriculum development for the postmodern era (Slattery, 1992, 1995a).

What is this proleptic vision for postmodern education? While definitions and metanarratives of this emerging paradigm are to be resisted, this article has presented a vision of time and postmodern learning that is radically eclectic, determined in the context of internal relatedness, recursive in its complexity, autobiographically intuitive, aesthetically intersubjective, phenomenological, experiential, simultaneously quantum and cosmic, ironic in its kaleidoscopic sensibilities, and, ultimately, a hermeneutic search for greater understanding that motivates and satisfies us on the journey. With T. S. Eliot (1971), we can conclude that time does not march on and that we are not prisoners enslaved in a clockwork universe, for time eternally recurs as duration: “We shall not cease from exploring, and the end of all our exploring will be to arrive where we started, and know the place for the first time” (p. 145).

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