

## *It's About Time*

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There is a way that people walk when they have walked a lot in hot weather. Their stride is deliberate, slow, loose-jointed, and sometimes includes an improvised shade of an umbrella, cap, scarf, newspaper, or even a piece of cardboard. There is something to be said for just starting out toward a place with no itinerary specifying when to be where or how long it should take. It is this kind of easy amble that allowed me to see a lizard lurking behind a cactus and decide to sit and watch it for a while before continuing on my journey. It is this kind of walking that too many American children, after being in a school where the whole day is spent moving mechanically between periods through stark hallways each day, would probably not recognize and, perhaps, would not even value.

The experience of walking in the deserts of Arizona that Sherrie enjoyed as a child competes with traditional conceptions of time as a variable that can be controlled and manipulated. In his essay, *A Postmodern Vision of Time and Learning*, Patrick Slattery (1995) argues that modernist assumptions about “time marching forward in an irreversible trajectory” have evolved from the Newtonian vision of a clockwork universe (p. 613). This exaggerated emphasis on time as an autonomous, quantifiable variable, Slattery contends, “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” (p. 613). Slattery indicts modern conceptions of time that present temporality as something that can be “controlled, managed, or manipulated for the purposes of advancing instructional objectives, improving classroom management, and enhancing evaluative results” (p. 612). While such a linear conception of time dominates many contemporary pedagogical spaces, this practice may be especially egregious when it perpetuates increasingly narrow measures of achievement that fail to honor the web of cultural

and social values embedded in literacy and learning.

### The Age of Certainty Has Ended

The age of certainty has ended, and these traditional assumptions about time illuminate our ineptitude as observers rather than expose an enduring characteristic of the universe. The New Sciences have revealed the constructed nature of the arrow of time, leading to a host of novel phenomena through the exploration of far-from-equilibrium processes. Ilya Prigogine (1997) believed that the New Sciences mark “the birth of a science that is no longer limited to idealized and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of nature” (p. 7). Moreover, the New Sciences have begun to value creativity as part of this fundamental trend and to recognize the inherent complexity embedded in our natural world (Prigogine, 1997). The artificial elimination of context in traditional approaches to curriculum violates this complexity and leads to erroneously simple understandings of our complex environment and its people. Our hope is that these revelations in the New Sciences are also leading to a new education, one which recognizes the complexity of human thought as well as the narrative, recursive, and contextual fabric of human civilization.

### Context and Curriculum

Slattery’s postmodern vision of time illuminates the inextricable fusion of space-time as it is described in theories of relativity. The relativity of time in space, expressed by Albert Einstein’s fundamental field equations was, of course, a cornerstone of “the Einsteinian revolution” (Prigogine, 1997, p. 176). Less well known, but equally provocative, is that in 1898, seven years before Einstein redefined simultaneity in his seminal paper on relativity, Henri Poincaré published an essay advancing strikingly similar ideas (Galison, 2003). Poincaré argued that “simultaneity was irreducibly a *convention*, an agreement among people, a pact chosen, not because it was inevitable in truth, but because it maximized human convenience” (as cited in Galison, 2003, p. 33). Interestingly, both of these famously intelligent men conceptualized their theories about the relativity of time near the beginning of the twentieth century. Even more intriguing, both of these men were actively engaged in solving very practical problems surrounding the synchronicity of clock time as they developed their ideas.

The influence of time and place on Einstein and Poincaré’s theories is an important illustration of the importance of context. Peter Galison (2003) suggests that Einstein’s position in the Bern patent office, when the most pressing problems in Switzerland dealt with trains and the simultaneity of time, may have been the petri dish from which his ideas about the space-time continuum sprung. Similarly, Poincaré’s professional position as the French Minister of Longitude offered him an opportunity to reflect upon the simultaneity of time as he approached practical issues associated with determining longitudes and latitudes while creating maps. In both cases, these scholars were bathed in ideas about real solutions to real problems while constructing their theories. Yet, we most often study these theories without even a nod to the context from which they may have sprung. The development of Einstein and Poincaré’s theories

underscore an important point about the value of solving problems in context. Furthermore, their stories demonstrate the way “scientists themselves, by and large, have traditionally helped to derogate or avoid discussions of the personal context of discovery in favor of the context of justification” (Holton, 1973, p. 17). In both cases, these scholars were bathed in ideas about real solutions to real problems as they developed their understandings.

Lev Vygotsky, one of the earliest theorists to recognize the importance of culture as a context for thought, was himself involved in the solution of very real and timely problems that may have precipitated his conclusions about the cultural tools that shape the consciousness from which these tools were created. As Vygotsky’s colleague A. R. Luria (1976) noted, “consciousness is the highest form of reflection of reality; it is, moreover, not given in advance, unchanging and passive, but shaped by activity and used by human beings to orient themselves to their environment, not only in adapting to conditions but in restructuring them” (p. 8). This critical shift from a positivistic understanding of reality illuminates the relationship between humans and our environment as connected, constructed, reciprocal, and recursive. Moreover, it requires a re-visioning of the processes by which we create conditions for students to engage the ideas generated by a specific culture. If it is the case that human consciousness evolves as humans engage and restructure the cultural tools that are available to them, then it matters whether or not we help students understand, and perhaps engage for themselves, the context out of which these big ideas emerged.

### Prisoners of Time

The complexity of lived experience resists such reductive conceptions of our world and necessitates a nuanced understanding of reality that acknowledges the inescapable connection between time and place. The idiosyncratic nature of time in space, understood differently by different people in various contexts, contributes to the rich tapestry of lived experience that confers an advantage on humans. There are no shortcuts, and efficiency in thinking and learning is an ill-conceived notion based on faulty psychology.

Slattery (1995) suggests that “postmodern visions of space-time and hyperspace challenge the static clockwork universe of classical physics” (p. 627) and that the deconstruction of these modern ideas will create a space for developing a postmodern understanding of schooling. With these ideas in mind, Slattery (1995) argues for a proleptic conception of time to account for the socially situated nature of time in space. “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” (Slattery, 1995, p. 614). The “prison of time” (Slattery, 1995, p. 612) in this instance strips concepts of their meaning and offers students only the barest skeleton of the original idea.

Slattery recommends that a proleptic conception of time, an understanding of time as being socially constructed within specific contexts, be a driving force in the construction of a postmodern curriculum. We suggest that this notion be expanded to include the necessity of community as another aspect of proleptic time. A proleptic understanding, thus, illuminates a life in a place as not only a single lived experience, but of one that reflects the many rich experiences embedded in the lives of the surrounding community. Moreover, we contend that understanding context allows us to understand the problems and the solutions adopted as

well as those that have been discarded, and that, as cultural understandings shift, some of these discarded solutions might prove valuable at a later date.

### Postmodern Education

As Zhao Zheng, Tian Guihua, Liu Liao, and Gao Sijie (2006) noted, when we approach Poincaré and Einstein's ideas as simply products of great men's inner processes, we miss some of the most important aspects of their stories. This systematic decontextualization is part of what has reduced the exhilarating process of engagement in authentic problem-solving opportunities to, what Alfred North Whitehead (1929/1957) called, "inert knowledge" (p. 7). Many educators teach these theories without even a nod to the context from which they were developed, ignoring the early stream of experiences that may have flowed through these brilliant minds and nourished their famously innovative ideas.

Two aspects of these stories suggest the need for changes in curriculum: 1) curriculum should embed ideas in the rich, layered contexts from which they emerged and 2) curriculum should allow students to construct their own understandings by solving real problems in context by actively engaging in the same kinds of experiences that gave rise to great ideas in the first place. We are not suggesting that learning be confined to simulations in sterilized laboratories where students pretend to solve problems that were solved long ago. Instead, we propose that curriculum facilitate opportunities for students to examine the ways in which solutions arise through authentic engagement with the current problems in their surrounding communities. Rather than asking each generation of students to reinvent the wheel, we hope that students will share the stories surrounding modern advances in knowledge in order to learn more about the context of the surrounding the problems being solved. This engagement with the real, practical problems that students face throughout their daily lives, thus, also leads to engagement with locally embedded ideas. In other words, we are encouraging educators to recognize that, at any given moment, people interpret time differently as they draw on the various contexts of their lives.

We envision a classroom that honors the irreducibly complex nature of lived experience and offers students a space in which to share autoethnographic narratives as a means to cultivate a collective appreciation for community and contextualized problem-solving. In essence, we hope to create a classroom that empowers students to free themselves from the shackles of time by recognizing the inextricable connection between time and place. We argue that approaching ideas from multiple vantage points creates a space for dialogue about the former middle school student from Texas who, after struggling to articulate the size of a local landmark in a short story she was preparing for class, smiled proudly the day she read her final draft and described the landmark as being "ten minutes tall." Much like the experience of walking a long distance, intentionally savoring the sensory details along the way, we propose that a student's experience in school should be as purposeful and rich.

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