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AUTHOR Brandhorst, Allan R.
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ABSTRACT

This paper reviews the current social studies literature on temporal perspective as a psychological phenomenon and relates that literature to the Piagetian paradigm of development. It discusses the contemporary viewpoints on the nature of time and temporality. The paper outlines the distinctions between the Piagetian paradigm and the Vygotskian paradigm of development, and discusses those distinctions in relation to Jerome Bruner's distinction between the narrative and paradigmatic modes of thought. The paper identifies implications of the Vygotskian paradigm for the teaching of history. Questions explored include: (1) Is learning time tied to the learner's developmental structure? (2) Should time understandings be a major consideration in how historical topics are introduced? (3) Should historical time concepts be taught in conjunction with history, just as clock and calendar time concepts are taught in conjunction with mathematics? and (4) Are time and history no more or less complex than algebra and trigonometry? Contains 16 references. (DK)

History, Narrative, and Human Temporal Perspective: In Search of a Developmental Paradigm

Allan R. Brandhorst
Associate Professor of Education
Valparaiso University

College & University Faculty Assembly
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Abstract

This paper reviews the current social studies literature on temporal perspective as a psychological phenomenon and relates that literature to the Piagetian paradigm of development; further it discusses the contemporary viewpoints on the nature of time/temporality; it outlines the distinctions between the Piagetian paradigm and the Vygotskian paradigm of development, and discusses those distinctions in relation to Jerome Bruner's distinction between the narrative and paradigmatic modes of thought; and finally, it identifies implications of the Vygotskian paradigm for the teaching of history.

In a recent publication (Thornton & Vukelich, 1988) the authors reviewed the literature on the relationship between learning time concepts and learning history. They summarized three different perspectives on this relationship (Hallam, 1970; Sleeper, 1975; Spieseke, 1963) and then advanced their own perspective (the developmental historical time perspective) as a more satisfactory approach to understanding this relationship. All four perspectives on the relationship presume that the understanding of time is somehow tied to the understanding of history. There were differences across the relationships, however, as they examined each.

Hallam's developmental cognitive view is clearly Piagetian. From this perspective he concludes that historical understanding requires formal operational thought, and thus is best pursued primarily after the onset of adolescence. Sleeper's psychosocial/developmental view is Freudian by way of Ericksonian theory. From this perspective Sleeper concludes, like Hallam but for different reasons, that historical understanding is constrained by developmental imperatives, and accordingly is best pursued after the onset of adolescence. The organic curriculum view, represented here by the work of Spieseke, is not concerned with development per se, but assumes that historical understanding and time concepts are inextricably linked.

Thornton and Vukelich, in their review, find all of these perspectives inadequate, particularly as they do not provide much in the way of particular guidelines on how to link time perspective to historical understanding, but also concerning the heavy reliance of Hallam and Sleeper on a Piagetian perspective. Thornton and Vukelich propose that young children can clearly understand some time concepts as early as six years of age, and accordingly there should be some effort to map out a chronology for matching the teaching of time concepts to the teaching of history.

In response to this need they propose the developmental historical time perspective as a guideline for tying the understanding of time to instruction in history. Specifically, they distinguish between clock and calendar time concepts, as might be tied to the teaching of

mathematics, and historical time concepts, as might be taught in conjunction with history. The developmental historical time perspective proposes ages at which young children presumably have understanding of historical time concepts, and implicitly suggests that those time concepts be specifically taught to children in their history classes at those identified ages.

Thornton and Vukelich distill the following from their review of the literature.

(1) Learning time is most likely tied to the learner's current developmental structure.

(2) Time understandings should be a major consideration in how historical topics are introduced.

(3) Historical time concepts should be taught in conjunction with history, just as clock and calendar time concepts are taught in conjunction with math.

(4) Time and history are no more or less complex than algebra and trigonometry in math or the great works of literature.

The Thornton and Vukelich position concludes with a plea for more efforts to understand how children learn history, particularly with regard to operative developmental constraints.

While Thornton and Vukelich present a persuasive case for going beyond the Hallam, Sleeper and Spieseke perspectives, their own conclusions may also be unwarranted. Thornton and Vukelich challenge the adequacy of the Piagetian developmental framework for understanding historical development, but their own conclusions about the importance of teaching time understandings in relation to teaching history are equally unwarranted. The central focus of their argument is the importance of teaching historical time concepts in tandem with history. The central exhibit of this thesis is a table summarizing and ordering by age of attainment the use of various temporal terms which presumably represent milestones in the achievement of historical understanding. An examination of those temporal milestones, however, demonstrates a predominance of dates (two-thirds of the entries concern dates) and a progressive sophistication in the use of dates to tag historical events.

That progression appears to be from a nominal understanding of dates to an ordinal understanding of chronology (evident by age eight). But the logic of the progression evaporates after age eight, and the entries in the Thornton and Vukelich exhibit after age eight appear to be random, although they are matched to ages.

Accordingly the reason for this obsession with dates, and the willingness to propose the use of dates as benchmarks is unclear. Dates are, after all, at best mnemonic devices, artificial constructions useful for enhancing memory for the ordering of events. To propose a developmental heirarchy around the use of a mnemonic, however, seems a bit strange. It is as if Thornton and Vukelich have confused the understanding of measurement of time with understanding time as a phenomena; and then have compounded the error by suggesting that this measurement of time is somehow instrumental to historical understanding. Producing a chronological ordering of the development of a mnemonic device and proposing that this is a developmental progression suggests a confusion about temporal meanings as they relate to historical understanding.

This fundamental confusion leads Thornton and Vukelich to propose a new set of principles for linking time learning and historical study, but these principles themselves are flawed. The Thornton and Vukelich proposal, while reflective of a sound intuition of a problem in the understanding of time and history, represents tinkering around the edges of the problem when a radically new perspective is called for.

The remainder of this paper will be directed toward the formulation of a radically new perspective on the relationship between historical understanding, temporal perspective, and narrative thought as developmental phenomena. However, because the impetus for this perspective arises from the Thornton and Vukelich proposal, I will approach that new perspective through a critique of the four conclusions advanced by Thornton and Vukelich.

Is Learning Time Tied to the Learner's Developmental Structure?

Thornton and Vukelich categorized the literature relating educa-

tion, psychology and history into two major areas. The first of these areas can be labelled as the Piagetian tradition in research on the child's understanding of duration, i.e., physical time. The second area can be labelled the study of the child's development of clock, calendar and historical time concepts. Thornton and Vukelich directed their attention to the second area (understanding clock, calendar and historical time concepts). The authors reviewed the work of Hallam, Sleeper and Spieseke and concluded that the prespectives of Hallam and Sleeper were extensions of the Piagetian tradition. In this sense the perspectives of Hallam and Sleeper assume a dependence on cognitive structure development for learning about time.

Thornton and Vukelich propose a fourth view, the developmental historical time viewpoint. As they develop their perspective, it becomes apparent that this is also in the Piagetian tradition. The focus of this viewpoint is the importance of historical time as a major component in historical reasoning. But the historical time concept as represented by Thornton and Vukelich is merely a chronology of dates. This is still the categorical mistake of confusing understanding of time and understanding the measurement of time. Measurement concepts, because of their abstractive nature, are clearly subject to Piagetian developmental imperatives.

The Thornton and Vukelich proposal, then, is correct in that learning time is tied to developmental structure, provided that we mean by learning time learning the measurement of time. The flaw here is the failure to recognize that an understanding of time can be achieved independent of measurement. Thornton and Vukelich seem to be assuming that time is an objective phenomenon, which varies only in terms of the units with which it is measured, i.e., clock, calendar and historical time (presumably time periods longer than one year). Such a viewpoint on the concept of temporality mistakes the measurement of a phenomena with its nature.

By contrast, as J.T. Fraser (1987) approaches the time concept, time is seen as a multifaceted phenomena in the universe. He distinguishes between time felt and time understood. Time felt is

noetic time, and is a product of the experience of time passing. Time felt is associated with semantic memory. "It makes possible introspective awareness of the internal and external world. We can say that the object of noetic consciousness is the organism's knowledge of its world." (Tulving, 1985). Time understood is autonoetic time. "Autonoetic (self-knowing) consciousness is a necessary correlate of episodic memory. It allows an individual to become aware of his or her own identity and existence in subjective time that extends from the past through the present to the future. It provides the familiar phenomenal flavor or recollective experience characterized by "pastness" and subjective veridicality."(Tulving, 1985). The time distinctions proposed by Fraser and Tulving may develop, but not in a manner analogous to Piagetian development. While Piagetian development attends to the development of cognitive process, i.e., the way that the mind represents external reality, the Tulving approach to development concerns the development of consciousness itself. As Tulving describes the development of consciousness, in correlation with the evolution of memory systems, procedural memory (anoetic consciousness) is present at birth. Semantic memory (noetic consciousness) develops as a specialized subsystem of procedural memory. Episodic memory (autonoetic consciousness) develops as a specialized subsystem of semantic memory. And all of these memory systems are operational in humans by the age of five.

The difference between the Piagetian focus and the Tulving focus is all important to the understanding of the relationship between the understanding of time and the understanding of history, because the understanding of time (as distinct from understanding the measurement of time) seems to be fully developed by the age of five. A commonsense demonstration of this reality (one that is central to the idea of historical understanding) is available to any adult, by recourse to reflection upon the age at which one can begin to recall one's own life. In my own educational psychology classses I have been asking undergraduates and graduates their age at the time of their earliest available memory. Consistently the answers (from hundreds of subjects)

have ranged between the age of three and the age of five.

Clearly the mental structures of memory upon which historical understanding depends, and consciousness of past, present, and future, are in place long before the individual begins understanding the culturally embedded concepts for the measurement of time. For the full import of this fact, however, we must turn to the work of Jerome Bruner. Bruner's work can provide a bridge to our consideration of the second problem, i.e., the relationship of time understandings and understanding history.

Should Time Understandings be a Major Consideration in How Historical Topics are Introduced?

Bruner (1986) directs our attention to a critical distinction in thought process. He discusses the distinction between narrative and paradigmatic thought, which he characterizes as follows:

> "There are two modes of cognitive functioning, two modes of thought, each providing distinctive ways of ordering experience, of constructing reality. The two (though complementary) are irreducible to one another.....Each way of knowing, moreover, has operating principles of its own and its own criteria of well-formedness. They differ radically in their procedures for verification. A good story and a well-formed argument are different natural kinds. Both can be used as means for convincing another. Yet what they convince of is fundamentally different; arguments convince one of their truth, stories of their lifelikeness. The one verifies by eventual appeal to procedures for establishing formal and empirical proof. The other establishes not truth but verisimilitude.....Each converts statements of fact into statements implying causality. But the types of causality implied in the two modes are palpably different. The term *then* functions differently in the logical proposition '*if x then y*' and in the narrative recit '*the king died, and then the queen died.*' One leads to a search for universal truth conditions, the other for likely particular connections between two events--mortal grief, suicide, foul play."

Bruner, in differentiating between narrative and paradigmatic modes

of thought, is directing attention away from the scientific way of knowing, a hallmark of the Piagetian tradition. In noting the differences he legitimizes our consideration of the narrative mode, and implicitly impels us to consider whether historical understanding is more appropriately a product of paradigmatic thinking or narrative thinking. If historical understanding is more a product of narrative thinking, then time understandings imperative to the achievement of historical understanding need only be understandings of temporal flow, i.e., past as distinct from present as distinct from future, as these are the prerequisite temporal understandings which underlie the understanding of narrative.

Historical understanding may be conceived in various ways. One way would be to consider historical understanding the ability to use history for informing decision-making in the present. If we are promoting historical understanding so that students can spot cases where history in a sense repeats itself, then in an operational sense that is what we mean by historical understanding. In truth few historians would buy into that sense of historical understanding in that extreme form. Two of the more prominent advocates of the utility of history for decision making (Neustadt and May, 1988) reject the notion that history repeats itself, although they implicitly acknowledge that decision makers who have been 'captured' by a historical analogy begin to function as if they believed in historical repetitiveness. Their position emphasizes the necessity of finding history that fits when trying to use the past as a guide to the present. Part of the process of finding history that fits requires an awareness of the differences between past events and present circumstances. It is that lack of attention to differences that leads to the illusion that the past is replicated in the present.

In this sense of historical understanding sequence is important; we must teach which events preceded and influenced subsequent events. The inclusion of dates in that process is merely a secondary feature. Dates are merely mnemonic devices for keeping track of sequence. You can as readily keep track of sequence the way West African griots do, by creating a story and putting the events of the story of the past in the

proper sequence.

In this sense of historical understanding the capacity to use analogies is also imperative. The capacity to use analogies has been shown to be independent of development (Goswami, 1992). The constraint on the use of analogies seems to arise from the degree of development of the structure of the knowledge upon which the analogies are based. This would suggest that learning history is primarily a matter of getting the meaning of the story straight, so that the story can become a more adequate guide to analogical reasoning about problems in the present. Dates have little to do with getting the story straight.

This kind of historical understanding would appear to more closely fit the narrative mode than the paradigmatic. In this activity we are seeking verisimilitude, not universal truth conditions. Historical understanding can be achieved independent of the grasp of clock time, calendar time, and the dates which demarcate historical time.

There are other ways to define historical understanding. We may define it as the achievement of a sense in which the past has shaped the present. Here we are focusing on the roots of present institutions in the historical past. Is this kind of historical understanding dependent upon narrative thinking or paradigmatic thinking?

To understand history in this sense is to grasp the necessary chains of causation which extend across time, and the continuity of institutions. Moreover, it is to recognize the embeddedness of any specific institution at the time of its formation in a specific cultural milieu. The particularities of such historical thinking again point toward verisimilitude rather than universal truth conditions. Historical circumstances are always unique. To mistakenly assume, as is required of the paradigmatic mode, that a historical circumstance is in any meaningful way an exemplar of a class of historical circumstances, as a Venuscomb Murex is an exemplar of all other Venuscomb Murexes, is to seriously misunderstand history. Thus again we find ourselves associating historical understanding with the narrative mode.

If historical understanding is clearly a product of narrative thinking, in what sense is the time concept, and its development,

relevant to that sense of history? Narrative requires a sense of sequence, not the precise measurement of temporal intervals. The time concept which Thornton and Vukelich employ in the developmental historical view is a time concept composed almost exclusively of time measurement concepts. On the face of it, it is difficult to appreciate why a claim should be made that time understandings, in the sense proposed by Thornton and Vukelich, should be considered an imperative in the development of historical understanding.

Should Historical Time Concepts Be Taught In Conjunction With History, Just As Clock And Calendar Time Concepts Are Taught in Conjunction With Mathematics?

This assertion assumes a shared kind of thought process across mathematical reasoning and historical reasoning. It then argues that if clock and calendar time concepts are taught in conjunction with mathematics, then why not teach historical time concepts in conjunction with history? The argument is flawed because the unexamined assumption of a commonality across mathematical reasoning and historical reasoning does not hold. Mathematical reasoning is associated with paradigmatic thought. As such it is subject to Piagetian developmental imperatives. The time concepts which Thornton and Vukelich associate with mathematics (clock and calendar time) are also measurement concepts, and fit the Piagetian developmental model. The Thornton and Vukelich association of historical time concepts with the learning of history, however, either straddles the two modes of thought (narrative and paradigmatic) or reduces history from a narrative phenomena to a paradigmatic phenomena. My intuition is that Thornton and Vukelich have done the latter, representing historical understanding as a chronology of events, as if there is some higher truth in the chronology. While this is clearly the way many school children (and many social studies teachers) have been lead to understand the study of history, such an understanding trivializes history, and leads all too often to the student querry "why do we have to learn this?" To which question teachers all to often

answer "because it will appear on the test".

There does not appear to be any particular reason why historical time concepts should be taught in conjunction with history, the way clock and calendar time concepts are taught in conjuction with math, unless we are committed to reducing the understanding of history to the understanding of chronology.

Are Time and History No More or Less Complex than Algebra and Trigonometry?

The final conclusion of Thornton and Vukelich, that time and history are no more or less complex than algebra and trigonometry in math is certainly misleading. There is an implication here that there is a single continuum of complexity common to both math and history, and the degree of complexity of time and history is the same as the degree of complexity of algebra and trigonometry. Thornton and Vukelich do not explicitly define complexity here, but from context we can infer that complexity refers to a developmental continuum of concrete to abstract, of much the same form as that which is central to Piagetian theory. The foregoing discussion has proposed that there are separate developmental progressions for narrative and paradigmatic thought, and accordingly comparisons in terms of degree of complexity across modes of thought become meaningless. It is, metaphorically, like comparing apples and cows. What kind of meaningful comparison could be derived?

Algebra and trigonometry are complex because they require thought at increasing levels of abstraction from reality as preconditions for their mastery. History is complex because historical thinking requires the ability to put yourself in another's skin in another time and place, and see the world through the other's eyes; and secondly it requires the ability to step beack from that involvement with a past event and view it in terms of the relationship between the past out of which the event emerged, the event as it occurred, and the future which unfolded as a consequence of the event. The first of these two abilities enables the thinker to situate the actions of the historical actor in a

cultural/temporal milieu, so that the event can be understood in context. It is complex to the degree that the thinker lacks the necessary sense of that cultural milieu, and/or is unable to envision the motives driving the historical actor. The thinker must be able to bring to the study of the historical event something from his or her own experience which can explain why particular actions occurred. The ability is developmental in the same sense that the ability to take the perspective of another is developmental. There is a body of literature which supports the notion that perspective taking is developmental (Flavell, 1968; Selman, 1971) but the conclusions of that research suggest that the ability to take the perspective of another is in place anywhere from age six to age nine. The unavailability of the right experiences from the thinker's own life for getting the 'correct' perspective on the historical event might impose a constraint on the ability to "get the story straight", but that would not be a developmental phenomenon in the Piagetian sense. Thus the notion of complexity when applied to the understanding of history is quite different than the notion of complexity as applied to algebra and trigonometry.

The second ability, to see time as a stream, is complex to the degree that an individual has mastered the sense of pastness and futureness in relation to the present. Earlier the sense of past and future was identified early in childhood, in most cases before school age. Thus here again complexity is demarcated on a different scale than algebra and trigonometry.

Historical Understanding: Toward a New Developmental Paradigm

The poor fit between the Piagetian developmental model and the developing understanding of history, coupled with the provocative work of Bruner on conceptualizing the narrative/paradigmatic distinction, creates a void in theory as to the developmental contraints operating the understanding of history. I am proposing that we consider Vygotsky's developmental theory as an option for thinking about historical understanding. There are sound reasons for this proposal.

Two features of Vygotsky's thought are of major importance here. The first is the salience of language to development; the second is the central place Vygotsky accords to consciousness in development. Let us consider language first.

Vygotsky wrote extensively about the importance of language in the development of a child's mind. His thesis that development was social in origin, inextricably bound up with the interaction of adults and children, arises from his conviction that the restructuring of the world in terms of a language culture characterizes human development. That restructuring process has at its origin the phenomenon of private speech in children. Children talk (out loud) to themselves to guide their problem solving activity. The more difficult the problem the more they talk to themselves. Gradually that talk becomes internal, and becomes the basis for thought. We might say that the internalization of language provides the structure of mind.

From this perspective, the richness of the language experience of the child would seem to be the root of any constraints operating on the child's ability to solve problems. To the extent that children are exposed to a rich language experience, and have ample opportunity to deploy that language in problem solving, they build mind. But that mind in early childhood is still under the domination of perception. It is only after the age of three that children are able to separate the meanings of language from the field of vision (Vygotsky, 1978). This achievement constitutes the basis for play, as the child is able to imagine that "a stick is a horse".

Vygotsky makes much of the importance of play in childhood. Play with words allows the child to build mind via the transition from private speech to inner speech/thought. When Vygotsky discusses the "zone of proximal development" it is in terms of the importance of verbal assistance from an adult in providing the language scaffolding that the child cannot yet provide for itself. The verbal scaffold (not Vygotsky's term) creates a language surrogate for previous visual or enactive experience. In fact the zone of proximal development is hypothesized to be limited by experience. Similarly imaginary role play

(overtly acting out the behavior of adults) allows the child to build scripts of behavior sequences in the mind. What I am proposing here is that we consider fantasy stories told to children as a form of play, as they require the child to use the words they know (as they occur in the story) to create an imaginary landscape upon which actions can take place and within which narrative movement can occur. Those stories may be very important to development as they promote imaginative play about times and places not directly experienced. And the story teller can be seen as the provider of the verbal/narrative scaffold which allows the child to create that imaginary landscape.

Perhaps it is now clear where this line of reasoning is headed. I am proposing that one of the primary constraints operating upon the development of historical understanding is the range of stories that children have been told. As children build up a repertoire of stories they build a library of narratives about the intentionalities of actors, either human or animal. To they extent that those stories are based in remote times or places children become sensitive to the ways that historical and cultural settings influence human motives. That library of narratives becomes an experience source for helping the student of historical events 'get the story straight' and attach meaning to events. What is implied here is that before the learner can begin to use historical knowledge to understand the institutions of the present or to reason analogically about problems in the present, the learner must first build meaningful narratives about the events of the past. Those narratives must be imaginatively created from the stories available in the child's memory.

The second feature of Vygotsky's thought of concern here is the central role of consciousness in development. Information processing theorists make much of the identity of working memory with consciousness. Moreover, they make much of the channel capacity limits of working memory or consciousness. Miller's "magic number seven plus or minus two" is an early manifestation of that principle. Because consciousness has limited channel capacity, human beings must chunk information in bundles; each bundle then requires a single space in the

working memory/consciousness.

Creating meaningful stories out of historical events is hypothesized here to be the equivalent of chunking information. Accordingly a historical event reduced to a meaningful story requires considerably less space in consciousness, and accordingly can be used in historical thinking. Contrast this approach to learning history with the typical textbook approach. Since the bulk of the historical narrative is a skeletal outline of dates, places, people, and events, it becomes difficult to attach meaning to what is read. Accordingly the jumble of information, lacking coherence, cannot be efficiently chunked. When we compound the problem by testing students over dates, names, and events in the manner of an objective testing format,we effectively encourage a learning process which will negate the capacity to engage in historical thinking.

For Vygotsky the importance of consciousness can be captured in this quotation from *Thought and Language*.

> We began our study with an attempt to discover the relation between thought and speech at the earliest stages of phylogenetic and ontogenetic development. We found no specific interdependence between the genetic roots of thought and word. It became plain that the inner relation we were looking for was not a prerequisite for, but rather a product of, the historical development of human consciousness.

Vygotsky's discussion of the development of consciousness is in terms of the on-going evolutionary development of the meanings of words. Because the world is understood differently as the meanings of words change with experience and new words are acquired, we might say that consciousness of the world has developed.

By way of illustration, let us consider the consciousness of the world of a French peasant in the Thirteenth Century who discovers that his children have contracted small pox. This knowledge does not include consciousness that there is a micro-organism which is causing the disease, and it does not include consciousness of the effectiveness of a serum derived from cow pox in immunizing children from the disease. His

consciousness is constrained by the the knowledge structures he can bring to bear in understanding his world.

Thus Vygotsky's perspective on development, and the one advocated here as a viable framework for thinking about the development of historical understanding, liberates teaching history from any definitive age constraints. Instead, the only constraint acknowledged is prior understanding of the meanings of words; and by extension, prior understanding of the meanings of stories (getting the story straight).

We must keep in mind, however, that this sense of consciousness, and with it the sense of the development of consciousness, is distinct from the sense of the development of consciousness as indicated by the work of Tulving. We clearly have two distinct senses in which consciousness develops. One of those progressions of development might be considered analogous to Kroeber's idea of the superorganic (1917), i.e., development at the cultural level (within any culture); the other progression of development is analogous to the idea of organic development, i.e., it occurs at the biological level. This latter would be the development of consciousness from the anoetic, to the noetic, to the autonoetic, as conceptualized by Tulving (1985).

Temporal Understanding and Historical Understanding

Historical understanding is constrained, then, in two ways, with both constraints operating out of the phenomenon of consciousness. In the case of consciousness as *Superorganic*, historical understanding requires an adequate library of narratives so that the learner can impose a narrative structure on a historical episode and thereby make it meaningful. The library of narratives can be a constraint if the learner has not been exposed to a sufficiently diverse range of narratives (television programming probably should be discounted because it is not primarily verbal) or if the language experience of the learner was so impoverished that the narratives were understood at only a superficial level.

In the case of consciousness as an organic/biological phenomenon,

historical understanding only requires that the learner have an operational episodic memory (autonoetic consciousness). The learner must be able to recognize and distinguish the past from the present, and project a future. This is the basis for seeing time as a stream, and accordingly it is the basis for recognizing the continuity of institutions from the past to the present. Only this latter type of constraint on historical understanding is linked to temporal understanding, and that temporal understanding is not based on the measurement of time. Moreover, that constraint on historical understanding should not be operative by the time a child enters upon formal education in the K-12 school system.

From the Vygotskian perspective on development, then, it may be perfectly reasonable to teach history to school children during the early elementary years, providing only that the student's readiness to get the meaning of the story straight has been established. The work of Thornton and Vukelich to the contrary, teaching historical time measurement concepts are merely window dressing in the learning of history, and carry no imperative for the development of historical understanding.

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