10-1-1995

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Joseph T. Echols
Pfeiffer College

George H. McNich

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An anachronism is an error of placing a person, thing, or event into an inappropriate historical period or context.

> *Treb.* *"There is no fear in him. Let him not die;*
> *For he will live, and laugh at this hereafter.*
> *[The clock strikes.]*
> *Bru.* *"Peace! Count the clock.*
> *Cass.* *"The clock hath stricken three."*
> (William Shakespeare, The Tragedy of
> Julius Caesar, Act II)

> *"... and King Arthur, realizing that he must return*
> *quickly to Camelot, decided to call a taxi..."*
> (A parent to a child in a storytelling
> situation.)

Does it belong? Is it correct? Shakespeare used the striking clock in *Julius Caesar*, an anachronism since clocks did not exist at the time of Caesar's reign, as a convention for impact and drama. The parental story teller challenged the belief and understanding of the young child through an anachronism to create interest and to entertain. However, far from being just a writer's or storyteller's convention, recognition of anachronisms, like recognition of concepts and categories, is in reality a tool of language and thinking that may promote the development of concept formation.

Early but significant work by Carroll (1964) postulated that concept formation was the integration of events and ideas into related classes that represented broad understandings that were used in thinking and responding. Johnson and Pearson (1978) described concepts as being semantic maps consisting of allied classes, properties, and examples. These stored language maps are the essentials of comprehension and thinking. More recently Hirsch (1987) defined cultural literacy as the basic and elemental information needed to respond quickly and accurately to problem solving situations. The more schemas (concepts) a person possesses, and the more inter-relatedness among the schemas, the more quickly the individual responds. Each of these theorists believed that information or ideas are clustered and retrieved in patterns of similarity.

What *isn't* a property or feature of an event may also be essential in helping pupils to create distinct concepts. Sensing what is wrong with text, conversations, or events may be one step to forming useful and expansive categories. For example, note the anachronism in the following sentence.

Columbus' crew was so excited at finally sighting land that they used their VCRs to video tape the entire event.

Recognition of anachronisms or improbabilities may be supportive of schema development or concept formation. Excluding may be as important for concept formation as is including.

Can these relationships among anachronisms, schema theory, and thinking skills be combined to produce useful classroom tools? Can teachers easily construct materials that can be used to enhance thinking skills? We think the answer is *yes*. Detecting anachronisms, creating concept patterns by

heightening recognition of what does *not* fit the schema, can form the basis of interesting and creative instructional activities.

Designing the activities

A summer teaching session gave us a chance to test our theory that the recognition of anachronisms could be developed by teachers into instructional vocabulary activities for classroom use with pupils. We challenged the 24 teachers in our graduate reading activities class, Developing Vocabulary in a Whole Language Environment, to be creative and productive and write their own unique vocabulary materials. The summer quarter class lasted approximately three hours a day for six weeks. Each class period contained lecture and discussion of a classroom technique for teaching or presenting vocabulary that lasted approximately one hour. The remaining class time, about two hours of each day, was devoted to the construction of different types of vocabulary activities that teachers could later use in their classrooms. In all six types of vocabulary development activities were constructed. Anachronisms was the fourth topic presented around which materials were developed.

After lectures and other instructional activities on schema theory and concept development, the concept of anachronisms was presented by example and discussed until all teachers were familiar and at ease with the writing convention. At this point the teachers were grouped into small cooperative working arrangements (five or six per group) and began the planning and writing process. The work time of three class days (six hours) was devoted to developing and writing activities centered around anachronisms.

Prior to the actual writing or the materials in class, it was decided that guidelines needed to be established so format

uniformity among the groups would be maintained and the finished products would be instructionally similar. The general format questions of nature, level, content, and length of the activities were addressed prior to writing. The teachers agreed that the materials produced should be useful as individual and/or small group activities that could be used either as classroom-centered activities or as individual learning center events. To meet these requirements of usefulness, activities that required both reading and writing a short answer and language paraphrasing were selected. Since most of the teachers worked with middle level students, a target of sixth or seventh grade concepts and reading levels was established. However, even with this target, most agreed that the materials must be general enough to satisfy precocious younger learners as well as developing older students.

To ensure that in the activities the students were being challenged to locate anachronisms and not just tested on memory of learned content, it was decided to use historical people or cultural events where the students would have a great deal of individual and collective cultural knowledge. Historical figures such as Christopher Columbus, King Arthur, and George Washington were considered to have enough common schemas to be useful for inclusion. Dinosaurs, sharks, and early air flight were more general topics thought to have enough cultural schemas and common knowledge to be used to present anachronisms. To present anachronisms the content of the material focused on the one or two significant features or properties that defined the concept and were firmly based in common fact or myth.

Two decisions were needed to satisfy the length question — length of the total activity, and length of each constituent paragraph or frame. In consideration of attention and interest spans, total length of each activity was kept to approximately

three pages or ten to fifteen frames or paragraphs — a five to fifteen minute activity. The text of each frame was to be kept to a reading minimum that still presented all the schemas and structure needed to provoke concepts and evoke common memories. Two. to four sentences seemed to work best since this amount of text could evoke common associations and schemas without in itself becoming instructional. Pupils would have to detect the improbability or the anachronism in each frame of content within the contrived story.   How could they demonstrate their recognition and understanding? It was decided that pupils could underline the out-of-balance part of the frame and then either write a plausible alternate correct scenario based upon fact or convention, or explain in writing the fallacy of the existing frame.

> *Some dinosaurs, like Plateosaurus, were plant-eaters. These large creatures routinely dined on ferns and plants in the vast swamps that covered the land. However, for a treat, they cooked broccoli and squash in their steamers. These dinosaurs also enjoyed dining on vegetable lasagna and eggplant parmigiana at their local vegetarian restaurant.*
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        Since it was anticipated that each activity would generally be used in a cooperative learning group, speaking, listening, reading, and writing would be used in each instructional episode, which would fit the tenets of whole language reading instruction.

Producing the anachronisms

        Our contention had been that teachers using the writing and storytelling convention of anachronisms would easily be able to construct learning materials that could be used to

promote the formation of concepts. With approximately six class hours of our summer quarter graduate reading course devoted to construction of materials involving anachronisms and improbabilities, the six working groups produced three activities each for a total of eighteen. Our goal was realized. Teachers could construct materials involving anachronisms. Topics which focused on anachronisms included the following: Ben Franklin, The Wright Brothers, Christopher Columbus, dinosaurs, sharks (*Jaws*), King Solomon, The Oregon Trail, Robin Hood, George Washington, King Arthur, Abraham Lincoln, Plymouth Rock, *The Right Stuff* (space travel), Henry Ford, and the Alamo.

Figure 1
The voyage of Christopher Columbus

1.   Christopher Columbus wanted to discover a new route to the treasures of the East in 1492. In order to determine his route, he consulted his Rand McNally *World Atlas* that he bought at the local B. Dalton book store.

2.   In order to pay for the trip, Columbus would have to purchase ships and pay for a crew. He needed money. To raise the needed capital, he borrowed money on his Visa card — he didn't have a preset limit!

3.   With the borrowed money Christopher purchased three ships, the *Nina*, the *Pinta*, and the *Santa Maria*. Each of the ships had fine fiberglass hulls and powerful diesel engines.

4.   Since all the sailors thought the world was flat, they feared that they might fall off the edge of the ocean. Columbus tried to calm the fears of the crew by showing them a globe and satellite navigation charts.

5.   After many weeks of sailing, the lookout spotted land. From the high rigging where he was standing the lookout shouted "Sir! I think I see Florida in the distance!! We have reached the New World."

6.   Columbus and the crew members were wildly excited. Each man rushed to the side of the ship nearest the land to take a picture with his camera. Some even wanted to record the event on a VCR.

7.   When Christopher Columbus arrived back in Spain he was warmly greeted by Queen Isabel and King Ferdinand. The royal couple gave him a Mercedes as a reward. This event was carried on the front page of the National Enquirer.

8.   Christopher Columbus was famous!! The year 1492 will always be important. He had proved that the world was not flat! And best of all Christopher was most proud of finding the country of Colombia — a small country that already had his name.

Figure 1 presents examples of the anachronism materials that the working groups produced in the class. These figures are only excerpts — shortened versions — of the actual activities produced by the teachers. For demonstration and brevity, the abbreviated activities are presented without the pupil's writing response box. As planned, each activity was centered around the common schema, cultural literacy, associated with the person or event. Each frame within the story focused on a specific attribute of the larger context and supported the essential concepts. Each activity presented an anachronism that could be corrected or explained. Each activity was approximately three pages and contained 12 to 14 frames.

Using the anachronisms

The test of the usefulness of the anachronism activities came with classroom use with middle grade pupils in instructional situations. Fifteen of the 24 teachers in the summer class who wrote and produced materials communicated back to the authors after the start of the school year. The materials were used successfully in regular and gifted classes in grades five to eight. All comments from the teachers were positive when detailing their perceptions concerning the usefulness of the activities in their classrooms. The original intent of the summer course was to create thinking and vocabulary activities for use in both learning centers and cooperative learning groups. The anachronism materials were successful in those roles. However, the most exciting result of the project was not the planned uses of the thinking activities, but rather, the nontraditional ways in which the teachers used the materials. Teachers expanded the usefulness of the anachronism activities by using them as alternative forms for required book reports, as material for journal writing, as parent/student cooperative homework assignments, and as story-telling formats for younger pupils.

Learning centers. The most common reported class-room use of the developed activities was in the learning center environment. Each learning center for thinking and vo-cabulary contained an anachronism activity and two other ac-tivities composed during the summer course   Students worked independently or in learning pairs to complete the three activities in each center. It took an average of 30 to 45 minutes (2 to 3 sessions) for each group or individual to com-plete a center. Each center had a classroom life of about two weeks. Centers were typically voluntary, but teachers reported that most children worked eagerly through each center.

Cooperative learning groups. The anachronism activi-ties were used as direct tools for teaching thinking in some classrooms. Both paper and acetate transparencies for the overhead projector were supplied for each group of five in the classroom. Each small cooperative learning group read, dis-cussed, and debated each frame of an activity. When the group members reached consensus through discussion they agreed upon the written solution and wrote their answers on the transparency. Each group then, in turn, shared their answers visually with the class by using the projector. Individual students were then free to complete their working copies with the answers or explanations felt to be most appro-priate or creative.

Book reports. Prior to a required reading unit on biogra-phies, one sixth-grade teacher used the anachronism activities in direct instruction in cooperative groups over a three-week period. Then children selected and read a biography of their choosing. Instead of using a traditional format for a book re-port, the children were guided into creating their own anachronism activities. A procedure was worked out by the teacher to lead the children in writing. The children were en-couraged to locate common facts about their character,

support these facts with detail, then include a situation or device for each fact that was out-of-time — an anachronism. The reports were then shared with their classmates as written activities similar to the ones constructed by the teachers.

Journal writing.   A seventh-grade teacher used the anachronism activities in her classroom to support creative journal writing.   After the children had completed all the reading/thinking anachronisms and were quite familiar with the recognition and explanation format, the teacher reversed the process of anachronisms (from new technology or events into older situations to old events or technology into current situations).   Additionally, instead of reading anachronisms the children were instructed to include anachronisms in their personal journal writing attempts.   In their writings, children were cleverly creating and developing their own out-of-time events.   Expressions such as *drawing water, adding wood to the stove, buttoning shoes, and erasing slates* often appeared in descriptions of the current classrooms.   Contemporary children wrote of *coming to school in wagons,* or *on the trolley.*   Clearly, children were thinking creatively and independently as they created anachronisms.

Parent/student cooperative homework. To create a bond between parents and children and to establish homework routines at home, one enterprising teacher used her created supply of activities as "Thursday homework" — homework that was completed jointly by parents and children on Thursday and discussed in class on Friday. On Friday in class, parent and child responses were read aloud and compared by the class members. The child-parent team with the most appropriate or creative answers, as judged by the members of the class, was awarded a certificate by the class.

Storytelling (where it all began). When asked to present a seminar at a parent teacher program, one teacher chose the topic of storytelling with anachronisms as her presentation. Her target audience was parents with young preschool children. The instructional session began with each set of attending parents completing a brief anachronism activity then listening as she told a story similar to the activity. The parents enjoyed this, and afterwards, the concepts of *schema, categorization,* and *relevant details* were presented to the parents. The session concluded by asking volunteer parents to tell a story, including anachronisms, to the group. Parents of young children were strongly encouraged to challenge their at-home children to think and respond while listening.

Using anachronisms successfully requires strong storytelling orientation, a good mastery of basic cultural knowledge, and the time to devote to writing. Teachers can add the use of anachronisms to their collection of learning/thinking materials.

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Joseph T. Echols is a faculty member in the Department of Chemistry at Pfeiffer College, in Misenheimer North Carolina. George H. W. McNinch is a faculty member in the Department of Education at West Georgia College, in Carrollton Georgia.