

# Using Schema Theory To Teach American History

For decades, cognitive scientists and psychologists have discussed the schema theory of human memory (Head 1920; Piaget 1926; Bartlett 1932; Ausubel 1967). The underlying idea of this theory is that humans, as they receive incoming information, organize it around their previously developed schemata, or “networks of connected ideas” (Slavin 1988, 155).

Humans develop many schemata over the course of their lifetimes. Young children have mental images of what a human face looks like; all new faces encountered are in some way compared to this image. In adult life, we each have a mental image of what the current tax system is like. Each new tax rule or regulation we learn about fits into our existing mental network of tax information.

As a major theory of learning, schema theory has tremendous implications for school classrooms. It is crucial for teachers to realize that students can remember substantial amounts of new information only if they are able to cluster it with their related existing ideas. People forget information if they do not work to integrate it into their existing mental frameworks. Ausubel states that “as a result of this type of anchorage to cognitive structure, the newly-learned material is no longer dependent for its incorporation and retention on the frail human capacity for assimilating and retaining arbitrary associations” (Ausubel 1967, 20). Teachers also must realize that the schemata of each student are distinct from those of others, even the teacher himself/herself. In this ever-changing, information-based society, history teachers must design instructional methods that are solidly rooted in these realizations. If we do this, we can give our students the historical framework, the thinking skills, and the reflective habits they will need later in life.

Several methods have been advocated as schema activators, or ways to foster more meaningful learning. David Ausubel (1960) championed the “advance organizer” as the best way for teachers to activate the appropriate schemata of students so that more conscious clustering of new information with existing ideas could take place. For example, to introduce a lesson on Shintoism, a teacher might activate students’ religion schemata by having students think about their own religions—their major lessons, stories, and principles. This teacher’s students are more likely to remember the key tenets of Shintoism by directly placing them into their existing schematic “organizations” than if they were presented with those tenets with no cognitive preparation. Other educators have suggested that concept maps and teacher questions are useful for activating students’ cognitive structures (Willerman and Mac Harg 1991; Cliburn 1990; LeNoir 1993).

What happens, though, when students are limited by their experiences and have no schemata with which to organize new information? Torney-Purta puts cognitive theory in a developmental context by stating that “younger children have less elaborate or complex schemata for political, social, or economic events...than older children” (1991, 205). To meet the learning needs of these students, I argue that teachers often must go beyond merely activating existing student schemata. When dealing with complex concepts or ones that are foreign to students, teachers must help students develop the appropriate new schemata. Young people often have no conception of such faraway and abstract ideas as international trade or social policy. For this reason, should we omit these concepts from our curricula? Of course not. But if we do teach them, we must try our best to make sure students understand them. How can we do this?

Coming to a comfortable understanding of a topic often requires great effort. Remember college calculus? With this in mind, Sizer (1984) states that students must be considered “workers” rather than receptacles for information. Only with their cognitive effort and the appropriate “coaching” from their teachers will true understanding and skill acquisition arrive. Those educators who base their efforts on schema theory find truth in Sizer’s principle of “student-as-worker”; students must work hard and receive the right kind of instruction to integrate new information actively into their existing schemata, to make sense of complex new ideas. In a school that adheres to the “student as worker” tenet, students are logically placed on center stage; the work of all adults in the buildings is centered on their thinking.

What is the role of history teachers in this “construction zone” (Newman 1989) where students are hard at work building the meaning of new ideas by linking them to what they already know? Primarily, teachers’ instructional methods must reflect a solid understanding of schema theory. I believe that there is no more effective method than placing students directly in historical decision-making and planning roles. For students to develop meaningful understandings of complex historical events, they must have the appropriate schemata. Teachers can help them develop these cognitive structures by challenging students to think as the historical figures in question actually thought. Not only does this type of method help students develop the schemata that are crucial for their retention and understanding of history, but it also makes clear the connections that exist in life between events, past and present.

I have used this approach when teaching about the United States’ policy of Reconstruction after the Civil War. Rather than simply lecturing or discussing readings on the topic, I have led my students on as direct a path toward real understanding as I can by placing them in the schema-developing role of policy planner. After being presented with the effects of the Civil War (e.g., statistics on the devastation of the South, casualties on both sides, the number of newly freed African Americans, etc.), students (in groups of three or four) were then asked to design a general plan to rebuild the nation and to make it whole again, based on several basic questions that I posed for them. What are the most pressing problems after the war? What groups of people need the most help? What can the government do to meet these needs?

This seemed like a daunting task to the students at first, but as they began to think about how different groups of Americans were affected, they began to discuss possible general remedies. I roved around the room, asking probing questions to challenge them to examine the ramifications of their proposals and to consider the needs of other groups of people. I also asked students to consider what resistance they might face to their ideas from political or social groups or from real limits on government powers. After each group had finished outlining its ideas, group representatives presented the plans to the whole class, and we highlighted common elements and unique ideas together.

After this activity, designed to help create schemata for the social policy of Reconstruction, the students were then ready to learn about the real Reconstruction. I lectured on the original Reconstruction plans of Lincoln, Johnson, and the Radical Republicans, stating at each juncture what was officially adopted as policy. Students took notes on the note-taking form in Figure 1. In the right column, they wrote all possible information. The left column offered the opportunity to reflect on this new information, comparing the real Reconstruction plans with their own. To do this, students evaluated the possible effects of their plans and the real effects of the plans designed by Presidents Lincoln and Johnson, and the radical congress. Students could be asked to categorize their plans into the real political divisions in the post-war United States. I made sure that special emphasis was placed on the elements the students left out of their plans. Lecture is generally considered a “boring” instructional method for students. However, I maintain that this is primarily because they see very few connections between the new material, delivered by lecture, and anything else of importance to them. This lecture, because the necessary schema creation took place in advance, was not dull.

For teachers carrying out this lesson, there are several possibilities. It may be desirable to conduct a discussion or student writing exercise about the general responsibilities of government in taking care of particularly needy segments of society. Comparisons might be made to modern welfare programs. The differences between the various points of view should be analyzed. This activity might end up taking two or three days, but if I had begun class by simply lecturing on Reconstruction, would the concept of government leaders making policy to remedy specific deficiencies in society have become as clear? Would students have been as deeply engaged in thought about general concepts such as government responsibilities or political opposition? Would students have been as aware of the connections between events of over a century ago and similar debates over social policy today?

Schema theory and the instructional methods that are based on it are necessary in schools for many reasons. Certainly they increase the amount of information retained by students. However, in this fast-paced, technological age of the 1990s, in which information is rushing at us at tremendous rates, information retention is less important than information usage in solving problems and making decisions.

We must go beyond fostering student retention of information and equip students with the skills necessary for them to make sense of the abundance of information and to use it to make responsible decisions in their personal and civic lives.

In calling for emphasis to be placed on the transfer of knowledge and skills to real life, Perkins (1992) states, "We don't learn fractions arithmetic to pass the arithmetic quiz." Howard (1987) states, "A basic problem in life is selecting the right schema to cover a certain situation." In other words, humans are limited by their schemata if they cannot see subtle relationships between ideas. Schema theory-based lessons are effective in overcoming this problem by challenging students to make the connections between ideas that are necessary for the transfer of abilities from the classroom to later life. These many connections make students better able to gain access to their knowledge when they need it in authentic situations, not simply for performance on a class test. As Torney-Purta states, "Access (to information) is enhanced when knowledge input is linked with prior knowledge" (1991, 195).

Besides better retention of information and increased ability to gain access to that information, consider the implicit messages sent to students by teaching methods such as the one outlined above.

First, students see that their opinions matter, but they must be able to defend their ideas using specific data and logical arguments.

Second, students must present their ideas to the larger group, and in doing so, their "ideas are reshaped, connected, and consolidated" even further (Torney-Purta 1991, 197).

Third, as Bruner states, there is a "continuity of knowledge" (1959, 82); that is, connections exist between ideas in the past and ideas today. These connections increase the likelihood that students will be able to transfer their knowledge of the material they have learned to their real lives.

Fourth, general conceptual and philosophical questions are raised. In the above example, what should the responsibilities of the American government be? What powers does the government have to effect social change? What role does the debate in the political process have in shaping policy?

Last and perhaps most importantly, students practice doing the things that American adults are expected to be able to do: sift through data, set priorities for government action, make choices that have real implications, consider different viewpoints, and defend their ideas with logical arguments.

Schema theory emphasizes the mental connections humans make between bits of information. People naturally remember new information by relating it to what they already know. History teachers must take advantage of this fact in designing their lessons. We, as history teachers, can help students not only activate their existing schemata, which may be limited to modern phenomena because of their limited experiences, but also develop new schemata through innovative, problem-solving and decision-making activities. Only when these schemata are developed can students truly understand the depth of past events and how events past and present provide a dynamic framework for understanding the future. We have the unique job of helping young people begin to develop schemata that depart from the mere here-and-now, that span centuries. In doing this job, we can meet our growing responsibility to students, the adults of the twenty-first century information age: to stimulate and foster the development of the thinking skills and reflective habits they will need for success.

## References

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