

## Conceptual understanding in history

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*There has been considerable interest in the topic of conceptual understanding especially as found in mathematics and the sciences. The present paper discusses recent studies related to conceptual understanding in the domain of history, comparing the nature of understandings as found in history to that other domains. Included are considerations of the role of the sources of historical knowledge, narrativization, causation and explanation. In addition, it is pointed out that conceptual change in history may differ from that in the sciences because of the former's emphasis upon the motives of people and the central role of the historian.*

In recent years there has been considerable interest in the topic of conceptual understanding, especially as found in mathematics and physics, and to a lesser extent, astronomy and biology. More recently, conceptual understanding has been studied in the domain of history, and it is the primary goal of this paper to non-exhaustively review this literature. A second objective is to compare conceptual understanding as found in history to that observed in others domains.

We consider three issues with respect to these objectives: 1) The nature of conceptual understanding in history; 2) Conceptual change in history; and 3) Conceptual change and understanding and instruction. To address these questions, we discuss five topics that have been the foci of attention in history-related research: 1) out-of-classroom learning; 2) understanding historical text and sourcing; 3) narrativization; 4) understanding second-order concepts, especially causality; 5) understanding explanation in history and the role of the historian. However, before considering these topics, a few comments are provided as background.

### **History and its instructional goals**

History may be defined as socio-political-economic change over time (e.g., Stearns, 1994; Topoltski, 1994). The field had its beginning in Ancient Greece, the discipline taking many turns in its subsequent evolution (See Collingwood, 1980/1946). In addition to history

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focused on states, today we find the study of social history, concerned, for example, with the history of the role of women, of sports, of medicine, and of other facets of everyday life.

The objectives of history instruction are multiple and diverse, even though only a few may dominate any given class (Hahn, 1994). History instruction has had as its objective the development of citizenship (Barth & Sherris, 1970), a goal involving the acquisition of the state's traditions, heroes, myths, and major events. In extreme form, this goal can foster nationalism, indoctrinating students with ideas of the superiority of their own country. Similarly, history instruction can be used to perpetuate a government's power. As Orwell commented, "The past controls the future and the present controls the past". History thus is the most politically volatile of disciplines.

History has also been taught to develop an enhanced understanding of global interaction. Similarly, it has been taught to develop empathy, that is, to give students a sense of life in other states (Ashby & Lee, 1987; Portel, 1987).

History has been taught because it is regarded as an academic discipline with important contents. It has been taught with the objective that a knowledge of history will help to avoid its repetition (Santayana, 1905). Indeed, even though history does not in fact repeat itself, it is argued that knowledge of history provides ideas that may be used to understand the present by examining possible parallels and analogies (Hahn, 1994; Rogers, 1987). Analogies, however, can also be detrimental to understanding (cf., Neustadt & May, 1986). Further, history has been taught to develop critical thinking skills, as it provides the opportunity for instruction in analysis, synthesis, argumentation, and other aspects of critical thinking. Finally, history has been taught to enhance ethnic self-esteem. This range of instructional goals may be contrasted with those of physics, which emphasize the learning of specific concepts, methods and problem-solving techniques.

For present purposes, we view history as a subject matter domain that is taught because its contents are of importance, and because its strong verbal literacy component may facilitate thinking skill development.

### Conceptual understanding in history

#### *Out-of-classroom learning*

In the United States, students generally first encounter history instruction in the fifth grade. Two issues of interest therefore are what students know about history before entering fifth grade, and where they learn it. Van Sledright and Brophy (1992) found that fourth grade students had pieces of historical information such as the knowledge of heroes and myths, and a sense of motives of historical figures. The students were also well-acquainted with narrative structure, understanding and telling stories. Students' knowledge, however, lacked context, failing to sense the events' significance and impact. Regarding where students learned about history, in a study titled "My mom taught me", Barton (1995) interviewing fourth and fifth graders, found the most common source of history learning was relatives, followed by media, especially television and movies, followed by local sources. Although the results indicate that students have a culturally-based sense of history prior to classroom history instruction, little research is available regarding whether out-of-school learning produces conflict with in-school history instruction, becomes integrated with it, or is maintained essentially independent of it.

Another study has additionally indicated that adults may maintain unintegrated out-of-school and in-school versions of history (Roizin & Wertsch, 1994). These authors studied Russian citizens, making the point that Russians learned an official version of Russian history when attending Soviet schools and an unofficial (often underground) version outside of school. The authors noted that while the state's "official" history had a cognitive function in teaching basic concepts, it also had functions of fostering a group identity and loyalty. When adults were asked questions about Russian history related to the 1917 Revolution, the respons-

es were in terms of the out-of-school version, having no integration with official instruction. The authors suggest that formal education did not accomplish its goals, with the unofficial version being regarded as more credible.

We pause here to consider the relation of the school findings to the development of conceptual understanding (Voss, Wiley, & Carraturo, 1994). One of the debated issues in the study of conceptual development in physics has been whether a student's naive conception of a phenomenon such as motion consists of a reasonably coherent, but mostly incorrect, model of motion (McCloskey, 1983) or whether the naive conception consists of pieces of knowledge that are not coherently integrated (di Sessa, 1993). A second issue involves the extent to which conceptual understanding consists primarily of adding new information to what is already known, and the extent to which it consists of restructuring or reformulating what is already known.

The out-of-school learning suggests that younger children do not have a model of history or historical explanation. Instead, they have particular beliefs about individuals, myths, and events of history that are not coherently integrated. Moreover, this sense of history is culturally transmitted by relatives and the media. The Roizin and Wertsch (1994) results suggest, however, that individuals can develop a somewhat coherent model about socioeconomic and political conditions largely based on the "unofficial" culture. Roizin and Wertsch (1994) found, for example, that adults provided explanations about the Soviet 1917 Revolution and its origins that were reasonably consistent and related to structural and institutional components, such as government, politics, and economic conditions.

The results thus suggest that while children have unintegrated pieces of historical information, at least the Russian adults interviewed had a reasonably abstract and coherent model of the Revolution. These findings suggest that further study is required regarding the perceptions adults have of their own current and past governments, how coherent such perceptions are, and most importantly to what extent do the perceptions reflect an extension of what was learned outside of school by children, as opposed to what they learned in school.

With respect to conceptual understanding development, the findings suggest that at a young age students add new information to what they know as opposed to restructuring old knowledge. For adults, the Russian data are not clear regarding the extent to which individuals added on information and/or restructured what they knew. An impression, however, is that they learned the "official" history in school, which they ignored, and interpreted new information in terms of the "unofficial" history, restructuring it when necessary.

Out-of-school learning in other domains has revealed results similar to those found in history. Arithmetic skills acquired out-of-school can be seen as operating somewhat independently of each other. Children responsible for everyday marketplace transactions are adept at price computations in their work, but unable to perform well on the same problems posed in a formal manner (Nunes, Carraturo, & Schliemann, 1993). Similarly, adult bookies and race-track bettors with minimal education are able to make complex calculations in a betting context, but are unable to perform similar formal computations (Ceci & Liker, 1986; Schliemann & Aciofy, 1989). Thus, there is apparently a level of competence in computational skill that people may achieve in contexts of personal importance, but that skill does not exist in general. Instead, the logical or symbolic component of "school" mathematics likely serves as an obstacle. Moreover, understanding mathematical symbols is what poor learners seem to be unable to do (Nathan, Kintsch, & Young, 1992), and traditional means of arithmetic instruction do little to elucidate the meaning of the notation. In mathematics then, the lack of integration between out-of-school and in-school arithmetic is apparently a missed opportunity for developing mathematical understanding.

In physics, the lack of integration between out-of-school, naive conceptions and the accepted scientific conceptions taught in school can actually pose an obstacle for student understanding of the formal concepts (McCloskey, 1983). A particularly robust finding is that even with some instruction about one-half of the students violate basic laws of motion in simple mechanics problems.

Even when students solve problems correctly, they are unable to demonstrate their under-

standing of the laws of motion, apparently relying on their intuitions about moving objects. Thus, in the domain of physics, the conceptions that the student brings from everyday or out-of-school experience can interfere with learning of the new, in-school concepts of physics.

#### *Understanding historical text and sourcing*

In studying history, information is obtained from many sources, including newspapers, books, speeches, diaries, letters, paintings, photographs, and other records. Furthermore, the contents of such sources may be in disagreement, and such conflicts need to be addressed. Moreover, since one of the goals of history research is to avoid interpreting a document's contents in terms of contemporary ideas (presentism), the historian needs to consider the document's contents in the context of the time in which it was constructed. This brings us to the issue of sourcing.

Using sources related to the American Revolutionary War's Battle of Lexington, Winburg (1991) studied how historians and students used sources. He found that historians used three heuristics when examining documents. One was termed sourcing, defined as the evaluation of the contents of a given source.

A second was comparison, in which the contents of different sources were compared. The third was contextualization, referring to establishing the appropriate context for the source information. Furthermore, historians, but not novices, also developed a subtext, that is, in examining documents, historians inferred why the author may have written the particular text and what the author sought to accomplish. Subtext generation thus typically requires considerable prior knowledge, with the novice being at a disadvantage in this regard. In addition, Winburg (1991) reported that historians gave greater weight to some textbook information than did historians.

Leinhardt and Young (1994), also studying how professional historians read sources, developed a model based upon two schemata termed *identity and interpret*. The identity schema included Weinberg's three heuristics and the concept of classification, which referred to relating the source contents to other similar sources. The interpretation schema had two components, one referring to text comprehension *per se*, and the other to the particular historian's theoretical orientation of history and background knowledge employed in interpreting the text contents. In sum, the appropriate use of sources and the development of a subtext may be regarded as domain-related skills that are acquired for the most part during the process of becoming a historian.

The idea that a particular historical issue often is interpreted in more than one way raises the question of the extent to which students, when studying multiple sources, show sensitivity to differences in the texts' contents. Research has indicated that students are reasonably sensitive to discrepancies among sources (Perfetti, Britt, Roue, Georgi, & Mason, 1994). Using texts expressing different viewpoints concerning American involvement in the development of the Panama Canal, college students were able to detect author bias, inconsistencies across texts, and incompleteness in texts, in the sense that more information regarding characters and events was needed to draw conclusions and resolve conflicts. Also, student sensitivity to multiple sources has been studied in fifth grade (van Sleighth & Kelly, 1995). While a number of students were sensitive to the positions taken by different authors, students evaluated the quality of a source in terms of the quantity of information available in that source, using the source as an archive.

With respect to developing conceptual understanding of the text contents, students changed opinion frequently when they encountered information in conflict with their existing beliefs about the situation in question (Perfetti et al., 1994). Students were, however, reading about a topic with which they were relatively unfamiliar and, not having a strong background in history, they likely did not strongly embrace a particular theoretical position, thereby making them more susceptible to opinion change.

An alternative way by which the conceptual understanding of history may be developed is by providing students with multiple sources and asking them to write an essay on a given

historical issue. Holt (1990, p. 10) makes this point emphatically by stating "Rather than teaching them to be consumers of stories, 'someone else's facts', we might better develop their critical faculties by letting them create stories on their own". Greene (1994) used this procedure with college students and historians. He found students obtained experience in skills such as hypothesis-testing and scenario generation. However, historians, using their knowledge, were better at integrating material from different sources. Historians also had a different sense of audience than the students, having a professional audience in mind as opposed to students having the audience of a teacher in mind.

The evaluation and use of sources is thus seen as an important aspect of conceptual understanding in history, both with respect to the historian and the student. When historians interact with sources, they work to a large extent in a top-down manner. Knowing what they are looking for, they are able to generate hypotheses and develop ideas based upon their prior knowledge, their theoretical background, and their approach to sourcing. Less experienced individuals are more likely focused on the source *per se* and its contents, doing less evaluation and subtext development. Student sourcing is thus more likely to be content-constrained. More research is needed on the topic of sourcing and related issues, especially the study of how a novice or expert develops a mental representation of a historical situation, how the representation changes as more sources are read, how information is integrated, discarded, or reformulated; and how preconceived notions play a role in the interpretation process.

In contrast to other domains, the results suggest that students probably have a less developed conceptual sense of historical phenomena than of physical phenomena. Even infants have expectations about physical phenomena. By preschool and elementary school, children may have reasonably well-developed physical concepts, for example their concept of the earth (Vosniadou & Brewer, 1992). However, while children may have a sense of "the past" at a young age, children's ideas of history are of heroes, myths and events, which are relatively more abstract phenomena. Given the concrete nature of physical phenomena, children would be more likely to construct naive "theories" of physics, theories that may include misperceptions. In history, naive conceptions are not so much misperceptions at odds with accepted explanations as they are simplifications and personifications of more advanced accounts (Voss, Wiley, & Kennel, 1994). Further, personification is not an unreasonable interpretive action based upon students' experience with the narrative genre. Interestingly, some of the earliest examples of historical writing, the narrative histories of Homer, are based on heroes and myths.

Another point of interest across subject matter domains involves conflict and what conflict produces in terms of conceptual change. In research on astronomy, Vosniadou and Brewer (1992) make the point that the student needs to encounter information that is in conflict with their beliefs in order for a misconception to be challenged. Such a conflict may then be resolved, although not necessarily so, by restructuring the preconceived idea in a manner more consistent with the scientifically accepted model of the given phenomenon. This procedure has also been suggested in other domains as well (Gardner, 1991), including biology (Carey, 1985) and physics (McCloskey & Kargon, 1987). In history, however, the matter is more complicated, for there may be two or more different accounts of a given historical event, such as accounts from different perspectives, without any one being the "right" model. This means that part of understanding history includes the realization that multiple perspectives may exist, without there being a "correct" one. With few exceptions as the two theories of light, scientific "truth" is usually regarded as unified.

#### **Narrativization**

Historians construct narratives. Indeed, Leinhardt and Young (1994), studying how historians perceive history, reported that historians feel it is important to write a "compelling narrative." Moreover, historians indicated that a narrative should have: 1) coherence ... the story should be tightly connected; 2) exhaustivity ... the narrative should include all of the available

information pertaining to the issue: 3) contextualization – the narrative should be framed appropriately with respect to time; 4) chronology – a time frame should be provided; 5) "plausible" causality – a reasonable account of the likely causal relations that occur in the course of the narrative should be provided. It is more therefore than a chronology.

Mink (1987) has referred to the narrative as a cognitive instrument, in the sense that the historian constructs a narrative from the interpretation of available information. The narrative is thus a product of the historian's imagination. Mink also noted that the narrative form has difficulties, such as not having criteria for what is coherent and what constitutes the relative "truth or falsity" of the narrative.

The construction of historical narratives, as pointed out by Leinhardt and Young (1994), involves a number of cognitive processes. The writer needs to evaluate sources, consider evidence, make inferences from information and interpret such information, justify conclusions, and generate hypotheses. Furthermore, to frame a narrative, the historian has to establish a beginning: "Once upon a time" will not do. When, for example, did the period of the American Revolutionary War begin? Indeed, Norman (1991) pointed out that the past is not narratively structured; the historian needs to frame the narrative and consider what is significant to the theme. Similarly, the construction of a narrative has been regarded as the building of a case, the statement of a complex argument telling how the given theme developed (Leinhardt, 1994). Danto (1985) also noted that narrative construction is abduction in Peirce's sense (1958), that is, the writer generates a hypothesis to account for known information.

The process of constructing a narrative thus constitutes an integral aspect of developing conceptual understanding in history. In this context, there is a need for a longitudinal study of a historian's work in writing a historical volume, beginning with the historian's initial statement of interest in writing such a volume through its completion. Such a study would provide an idea of the conceptual development and restructuring that takes place in the writing.

In contrast, there is little use of narrative in domains such as math and physics. We believe that the reason for this difference is critical with respect to domain differences. The reason why narratives are not found in scientific explanations involves the issue of domain-specific rules of evidence. Scientific evidence generally takes the form of experimental and/or empirical observation conducted with appropriate controls. However, history generally does not allow for experimentation, the manipulation and controlled testing of particular variables. Instead, narrative development is employed as evidence, with emphasis upon the five previously described criteria. Furthermore, of more than passing interest is the observation that in everyday reasoning narrative is also frequently accepted as evidence. Kahn (1991) observed this tendency and termed it "pseudo-evidence", acknowledging only scientific explanation as "evidence".

#### *Second order concepts – Causation*

*Causation in history.* The term second-order refers to concepts such as causality, justification, and evidence; concepts that do not relate to historical content per se, but to the operations that are employed in relation to such content (Lee, Dickinson, & Ashby, 1994). Of particular importance is the concept of causality, a difficult concept in any domain but of particular complexity in history.

We restrict our consideration of second-order concepts to this topic, only touching on its complexities.

To illustrate the difficulty of causality in history, consider the 1990-91 Gulf War. What caused the war? Was it Iraq's invasion of Kuwait? Was it the personality of Saddam Hussein and/or George Bush? Was it U.S. Middle East policy? What about the boundaries established after World War I with respect to Middle East states? Was it the demise of the Soviet Union? A case could be built that each could be a causal factor in producing the war. The possibility that remote factors can be causal was noted in a widely-cited comment attributed to Pascal, that if Cleopatra's nose would have been 1/4 inch longer, would the history of Western Civilization been changed?

Various solutions have been offered to the problem of multiple causation. J.S. Mill (1950/1843) felt there could be no specific "cause" since all relevant factors could be viewed as causal factors. Another effort has been that of distinguishing conditions and causes (e.g., Einhorn & Hogarth, 1986; Mackie, 1965). A similar approach is taken by Ringer (1989) who argues for the importance of counterfactual reasoning in establishing causation. Machinlyre (1964) however argued against multiple causes by indicating that four components are needed for causation to be established. There is a set of conditions, E1, which under normal circumstances produces E2. However, an intervening event, I1 occurs, and instead of E2 occurring, I2 occurs. What Machinlyre argued is that one needs to ascertain why I2 and not some other event, I3, occurred.

One other point about causation in history is that the concepts of necessity and sufficiency are difficult to apply. One may ask whether the bombing of Pearl Harbor was a necessary condition for the United States to enter World War II. The likely answer is "no" because other conditions could likely have produced that outcome. Was the bombing sufficient? The answer seems to be "yes". But there are cases when an attack by one country upon another did not result in a war. Given this, the question is what additional conditions existed at the time of Pearl Harbor in addition to the bombing to produce sufficiency?

*Perception of causation.* The nature of causation in history is a difficult issue. But from a psychological/instructional standpoint, a more important question is perhaps how people perceive such causation. Voss, Carretero, Kennel, and Silfies (1994) asked college students to write an essay on what produced the collapse of the Soviet Union. Subsequently the students were given a list of possible causal factors and asked to rate each for its importance. Later the students were again given a list of causes and asked to construct a causal map of the collapse. In their essays, students generally provided more than one cause, with the poorer essays tending to be the listing of a few causes and the more sophisticated having sometimes extensive narrative accounts. As to types of causes, the more sophisticated narratives often indicated that undesirable economic and political conditions existed and Gorbachev took action to effect change. This resulted in an action which changed the existing state of affairs, which in turn was followed by another action.

Constructing a causal map, a number of the students who had written sparse essays developed a much more elaborate causal account of the Soviet Collapse, a result suggesting these students had a better understanding of the Soviet Collapse than portrayed by their essays. This result raises a methodological point regarding the conceptual understanding of history, namely, individuals may have knowledge of particular pieces of historical episodes, but the pieces may not be organized in a way to facilitate retrieval. However, when information is provided, individuals may be able to organize it in a meaningful way.

One other finding of the study was that in rating possible causes for their importance, recent factors were rated as more important than remote factors. A possible interpretation of this finding is that potential causal events may differ in "constraining power", that is, individuals perceive that an event seventy years ago likely could not constrain matters so as to produce an outcome today; indeed, too many other things could have happened. However, a recent event may have a more direct influence, acting to provide greater constraint.

The perception of causation is apparently somewhat different in history than in the physical sciences. In the latter there is the assumption that with appropriate controls, the effect of a simple causal agent may be isolated, whether such causation is thought to reflect covariation or some other mechanism. The interaction of a number of causal factors may also be established, sometimes in a statistical sense. Yet the isolation of causes in the physical sciences is in large part due to the opportunity to employ appropriate control and hypothesis-testing procedures. In contrast, historical events are generally thought to be related to many preceding events, as noted, historical events are often perceived as having multiple causes (Voss, Wiley, & Kennel, 1994). Which causes are more important, and how they produce an effect, become issues for research and argumentation.

*Explanation and the historian*

*Explanation in history.* What is it that produces the changes over time that constitute history? A number of answers have been offered. One answer is that historical change occurs because some general factor occurs to produce change (Collingwood, 1946). In the Middle Ages historical change was attributed to God's Plan. Marxism later held that historical change occurs via the inevitable operation of social-economic-political laws. The positivist view holds that history is governed by laws. Hempel's (1942) "covering law" indicated that if E1 is followed by E2, it is because there is a law relating E1 to E2. A number of historians took issue with the idea of laws of history, noting that history is related to particulars, to specific situations, and not to laws that cover many circumstances (Dray, 1957). It was also argued that laws in history have not been demonstrated. Finally, Mink (1987) has suggested that perhaps even implicitly, many people hold the idea of Universal History, that is, that history unfolds in a particular way. It does not just happen.

The majority of other theoretical viewpoints place a greater emphasis on human factors, whether on individuals or institutions. Historians tend to emphasize structures, basing historical explanation primarily on the role of government, the church, and economic conditions. Such structuralist explanations minimize the role of specific individuals, although the institutions are composed of people.

A study by Voss, Wiley, and Kennet (1994) had college students rate their agreement with statements that were representative of particular theoretical approaches to history. College students as a group did not fit well into any of the specific viewpoints in the field. However, the students rejected statements attributing historical change to some force external to humans, such as God's Plan, Marxism, or positivism (change via laws). On the other hand, students generally agreed with explanations having human involvement, including structuralism.

The Voss, Wiley, and Kennet (1994) findings are consistent with Hallden's argument that individuals tend to personify history. Hallden (1993) delineated three types of personification, attributing change to decisions and actions of great men and women, personifying institutions by statements such as "the government feels that —", and by transforming structural explanations into personal explanations.

Hallden (1993) reported a study in which a high school class in Sweden was studying how Sweden became a democracy. Three structural explanations were delineated, for example the industrialization of Sweden. After the course students were asked in interviews how Sweden became a democracy. Their answers consisted largely of saying how the people became tired of the government and took action to produce a change. Explanation was thus in terms of people, not institutional structures as was taught in class. Hallden interpreted the results in terms of "alternative frameworks", arguing that students had a conception of history that is different than that held by historians, emphasizing people and not structures. Hallden did not regard this as a misperception of a phenomenon but as a difference in fundamental beliefs about the subject matter.

*The role of the historian.* A final consideration concerning explanation in history is the role of the historian. Shemilt (1987) interviewed students aged 13 to 16, finding that students responded at four levels when questioned about the role of the historian, the levels not necessarily correlating with age. At the lowest level, students felt historical facts were virtually inviolate. At the next level students felt there were questions about historical accuracy, and the historian needed to be a detective to determine what is really true. At the third level, there was increasing concern with accuracy, the difficulties being primarily attributed to the methodology employed. Finally, at the fourth level the students realized that the historian needs to construct or reconstruct the past, seeking and using information. Thus, the historical account depends on the perspective of the historian, which suggests why two people writing about a given historical event will not write the same thing, and also why history is always rewritten over time. It is not just that new information becomes available, it is also that ideas change and history is written by historians under the influence of the present. In contrast, scientific

investigation prides itself on objectivity and replicability. The role of the scientist is as a detached observer. While this view is an exaggeration, and sociologists of science may provide reason for skepticism, the writing of the historian bears a closer resemblance to fiction that it does a mathematical proof, or a physical science journal article (cf., Mink, 1987).

**Concluding statements**

We now return to the issues identified in the introductory section. First, from the literature considered it appears that conceptual understanding in history involves not only knowledge of historical events and when they occurred, but placing these events in context, realizing their significance and their impact. Historical understanding also includes knowing how historical accounts are produced, knowing about sourcing, narrativization, and the role of the historian, and from the perspective of thinking skills, historical understanding requires individuals to be able to provide and evaluate claims, evidence, and justifications, and to think in terms of hypotheses, narratives, and explanations.

As to how the study of conceptual understanding in history relates to that in other domains, the idea of knowing about concepts and their relationships is similar across domains. Also, a well-reasoned argument is needed in all domains to convince a professional audience, although it is not a sufficient condition (or even necessary). But the study of history differs in a number of ways from other domains. History, for example, tends to be a field in which verbal argument is primary and scientific or mathematical explanation is almost nonexistent. Also, what constitutes evidence in history tends to be different from evidence in science.

As to conceptual change, in history it appears to occur via the addition of new information, although evidence bearing on the question is sparse. A potentially interesting aspect of conceptual conflict and change in history is the issue surrounding in-school and out-of-school learning. A question that needs to be answered is whether students may integrate the notions that they have about history with the history they learn in the classroom, or if they maintain the history they learn in the classroom only on a short-term basis for the purpose of testing, remembering little of what they learned over the long term.

Assume a student holds the typical American view that at the time of the American Revolution virtually all colonists desired independence. These were patriots who wanted to be free of the "yoke" of England. Then assume that this student reads in school that a large number of American colonists were strongly opposed to separation from England, and that those who were in favor of the Revolution stood to profit from it financially. What does the student do? The student may restructure his or her beliefs, considering that a different set of colonist motives were operating than previously believed. How frequently this type of restructuring occurs is not clear. How is this different than restructuring in physics? One difference lies in the fact that reinterpretation in history involves human motives, so new explanations must be plausible not only in terms of the student's knowledge of history, but also in relation to student's perception of people.

A second way in which students may undergo cognitive restructuring in history is via changes in their concept of historical explanation. If Hallden is correct and students do explain history primarily in personified terms, then restructuring could occur when they realize that historical explanation frequently emphasizes institutions. Such restructuring, however, may only occur in advanced students of history, probably at the college level.

A third way in which conceptual restructuring may take place in history is via changing conceptions of the role of the historian and the nature of history itself. Many students (and we suspect adults) view historians as detectives (Shemilt, 1987) and do not realize the basic role played by individual historians. Similarly, students may not recognize that the two accounts of the American Revolution are not mutually exclusive "truths", but rather they are arguments that can both be valid. Thus, restructuring may be required in order for students to realize the constructive, subjective, and argumentative nature of history as a domain.

An interesting point about this last way that restructuring may take place in history is that

it essentially does not take place in scientific domains. People restructure their concepts about scientific phenomena; only rarely do they restructure their conceptual understanding of the nature of science and the role of the scientist. Indeed, such restructuring generally would require quite advanced work in, for example, the sociology, philosophy, or history of science.

A final point is that history instruction would likely benefit from a greater emphasis on all these means of cognitive restructuring, that is, instruction involving alternative perspectives of phenomena, instruction in the nature of history per se, and instruction in the role of the historian.

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*L'n intérêt considérable s'est récemment développé à propos de la compréhension des changements conceptuels, notamment en mathématiques et dans les sciences. Dans cet article, c'est le problème de la compréhension de l'histoire qui est abordé et comparé à la compréhension dans d'autres domaines. On examine en particulier le rôle des sources de la connaissance historique, de la narration, de la causalité et de l'explicitation. On attire en outre l'attention sur le fait qu'une différence importante entre les changements de conceptualisation dans les sciences et en histoire tient à ce que dans ce dernier domaine les motifs des acteurs historiques et le rôle central de l'histoire occupent une place importante.*

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