The Need to Leverage Theory in the Development of Guidelines for Using Technology in Social Studies Teacher Preparation:
A Reply to Crocco and Mason et al.

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There is currently a wave of interest within education regarding the appropriate use of technology in the classroom (Maddux, Johnson, & Willis, 2001; Owston, 1997). This interest is also readily apparent within the specific domain of social studies (Berson, Cruz, Duplass, & Johnston, 2001; Ross, 2000). Mason, Berson, Diem, Hicks, Lee, & Dralle (2000) recently provided a list of "guidelines for using technology to prepare social studies teachers." The general thrust of the Mason et al. article was the delineation of five principles for guiding the use of technology within social studies education, generally, and social studies teacher education, specifically.

According to Mason et al. (2000), social studies educators need to focus on (a) utilizing technology to engage students in sources and activities that are beyond that which is possible in the traditional non-technology classroom; (b) integrating technology into lessons to facilitate student achievement and not focus solely on the development of technology-based skills; (c) reducing the "digital divide," but also providing thoughtful and prudent technology integration to all students; (d) developing the skills and knowledge necessary for future students to be active and productive citizens in a democratic society; and (e) continuing the investigation into how technology can be used to influence and enhance teaching and learning within the social studies. Mason et al. concluded by stating, "The challenge then, over the next decade, will be to provide

quality training to all social studies educators that incorporates the principles noted here, while gaining insight into the effectiveness of the medium and the message through research."

Crocco (2001), in a response to Mason et al. (2000), raised several questions concerning the implementation of technology within the social studies. These questions address what knowledge and skills social studies educators should know about technology, whether the focus should be on technology skills or technology usage, how technology can be used to enhance teaching and learning, and how technology may impair education in the long term. Crocco (2001) stated that the fundamental issue for addressing her questions, Mason et al.'s (2000) five principles, and the general use of technology in the social studies is that "in teaching and writing about technology in social studies, researchers and teacher educators need to be clear and explicit about what learning theory informs the ways in which learning will be extended through the use of technology." Further, Crocco (2001) concluded her article by stating,

> Unless we adopt and promote a powerful, research-based theory of learning on which our answers to these questions depend, we will miss an incredible opportunity to leverage technology for real change in social studies teacher education and by extension, in our nation's schools.

Crocco's (2001) point is essential—social studies education, generally, and the use of technology in social studies education, specifically, needs a theoretical foundation upon which to build valid technological and non-technological pedagogy. Mason et al. (2001) are correct when they state,

> Preservice teachers must not simply acquire skills that make them proficient at using technology, but also learn how to use technology to make their teaching better than it would be without it....Therefore, if teachers are to use technology in the classroom, it is important that they receive appropriate technological training in methods and other education courses.

Unfortunately, Mason et al. (2000) provided little or no theoretical foundation for establishing what is "better" teaching and "appropriate technological training." Crocco (2001), while positing the need for "a strong statement about the model of teaching and learning necessary or at least favored in fulfilling these promises of enrichment and improvement," does little to further this cause. She mentions her preference for philosophically based constructivism as an appropriate theoretical foundation and also makes several references to Bransford, Brown, and Cocking's (1999) text, *How People Learn*, which presents a more empirically based cognitive psychology approach. Which theoretical approach to take, constructivism or cognitive psychology, is perhaps less of an issue than simply the need to take one. It is time within social studies education to take a long look backwards at the beliefs, assumptions, and theory underlying the domain, so that the look forward to practice and pedagogy is clear, informed, and valid. It is time to stop professing technological and pedagogical integration and to start integrating with purpose and forethought.

The Need for a Theoretical Foundation

The basis for a theoretical foundation is a good theory. A theory is a set of interrelated and interdependent principles designed to explain phenomena of interest. Specifically, a theory of human learning would combine principles of human memory and learning in order to explain and predict human thought and behavior. Such a theory of human learning would include three essential components: theoretical principles, theoretical formation, and theoretical function (see Figure 1). The theoretical principles "identify specific factors that consistently influence learning

and describe the particular effects of these factors [on thought and behavior]" (Ormrod, 1999, p. 4). These principles are then meaningfully combined or synthesized to form a theory. The theory, however, is useless unless it can be applied through prediction, explanation, or regulation.

Figure 1. A theory is synthesized from principles of phenomena and seeks to inform the prediction, explanation, and regulation of those phenomena.

While there are several characteristics of valid theories, only three are mentioned here (see Hergenhahn & Olson, 1993). First, the principles and the resultant theory must be verified through observations of the actual phenomena being explained. Good theory is grounded in and agrees with rigorous observation. Second, a theory is a synthesis of many, and often disparate, observations. A theory provides an integration of both observational data and the relationships between those data resulting in a clear, though often complex, description. Third, theory is a tool and thus is neither right nor wrong, but rather, useful or not useful. That is, a theory is only as beneficial as its ability to correctly explain, predict, or regulate.

This brief foray into theory is necessary to explain the essential role of theory in the formation of guidelines, prescriptions, or suggestions for instruction, learning, and technology in social studies. Theory provides an essential rationale for answering why when promoting guidelines or suggestions. For example, Mason et al. (2000) suggested, "The challenge in preparing social studies teachers to use technology begins by highlighting how technology can be used to encourage inquiry, perspective taking, and meaning making." Crocco (2001), similarly, states, "The chief value of technology lies therefore, in providing the leverage so urgently needed for moving social studies instruction away from passive, teacher-dominated approaches emphasizing recall and regurgitation towards active, student-centered forms of learning demanding critical and conceptual thinking from *all* students at *all* levels" (italics in the original). These statements raise the question, "On what basis is the promotion of 'inquiry, perspective taking, and meaning making' and 'active, student-centered forms of learning demanding critical and conceptual thinking ' made?" Additionally, what does is mean to be "student-centered" and why is student-centered better than teacher-centered? Finally, while these two statements are agreeable to most, they are whispers unless they can be supported by a theory based on empirical observation. Indeed, when these statements are linked to a solid theoretical foundation, they become deafening.

It should be noted at this point, however, that while a large portion of social studies guidelines, prescriptions, or suggestions for instruction, learning, and technology lack a theoretical foundation, this is not always the case. Milman and Heinecke (2000) explicitly addressed the theoretical foundation of their investigation into the use of Internet technology in an undergraduate history course. Milman and Heinecke clearly stated their theoretical foundation as symbolic interactionism, a form of social constructivism. They then stated three assumptions of symbolic interactionism and provided a link between their theoretical foundation and classroom instruction. Unfortunately, Milman and Heinecke's explanation of symbolic interactionism was

superficial, providing the reader with little knowledge from which to understand their findings. In addition, Milman and Heinecke provided no connection between their use of symbolic interactionism and their prior discussion of constructivism.

This author's concern is not which theoretical foundation Milman and Heinecke (2000) used (or Mason et al. or Crocco for that matter), but did they adequately specify the details of their theoretical foundation such that the reader can comprehend the basis for their findings. This concern develops direct significance in Milman and Heinecke's final implication for social studies teacher education, "Social studies teacher educators could use the model of technology integration and constructivist pedagogy represented in this study to redesign the teaching methods course" (p. 563). If readers do not understand the theoretical foundation upon which the "technology integration and constructivist pedagogy" are based, that is, why the integration and pedagogy were effective, then the reader's only options are to mimic Milman and Heineck's design or blindly apply an augmented design. If, however, readers comprehend the theoretical foundation of Milman and Heineck's study and findings, then the readers may appropriate the theoretical foundation's principles and judiciously apply them to their own situations. Finally, if social studies teacher educators are not clear about their theoretical foundations, then how can we expect clarity from our students?

Constructivism and Cognitive Psychology as Theoretical Foundations

As mentioned previously, the intent here is not to propose one theoretical foundation over another. Indeed, there are a multitude of theoretical foundations depending upon one's focus and intent. Crocco (2001), however, mentioned two potential theories that may serve social studies well if adopted more rigorously—cognitive psychology and constructivism. While a full explication of these theories is beyond the scope of this article, a brief synopsis of each is provided to demonstrate the role of theoretical foundations in the informed construction of social studies practice.

Cognitive Psychology. Cognitive psychology uses the metaphor of "humans as information processors" (Mayer, 1998); that is, human thought and behavior are explained by positing how the human mind processes the information it experiences and retains. The information processing metaphor is instantiated through the use of mental structures and the mental processes that act on and with these structures. Typically, cognitive psychology theorists focus on structures and processes such as sensation, perception, attention, sensory memory, working memory, long-term memory, knowledge organization, comprehension, problem solving, and expertise. These foci are investigated empirically and integrated into various theoretical models, such as information processing theory. Often these theoretical models include diagrammatic representations such as Figure 2.
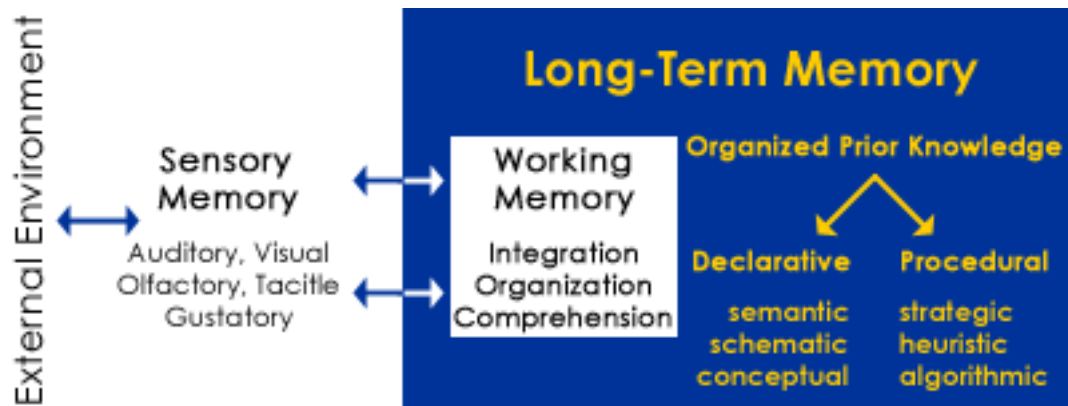
Figure 2. A generaic model of cognitive psychology's information processing theory including both structures and processes

The empirical investigations of information processing theory have resulted in many principles regarding the nature of human thought and behavior. Three of these principles will be discussed along with their application to social studies teacher education to demonstrate the power of utilizing a sound theoretical foundation (see Table 1).

Table 1. A Series of Information Processing Theoretical Foundation Examples That Relate Theoretical Principles to Theoretical Applications Within Social Studies

Theoretical Principles	Theoretical Application
Knowledge is retained more readily when it is processed more deeply (Craik & Lockhart, 1972).	Teachers should focus on how students are processing knowledge, not simply what they are "doing." Specifically, the "doing" of history should focus on the processes used by historians, not simply the use of primary sources within traditional pedagogy.
Elaborative processing, especially self-generated and personally relevant elaborations, results in increased memory retention (Anderson & Bower, 1972; Stein & Bransford, 1979).	Students should be encouraged to relate their prior knowledge to current experiences; specifically, students should actively relate their autobiographical knowledge to new historical concepts, processes, and experiences.
Individuals organize knowledge according to schemas and scripts, which influence how new knowledge is encoded and prior knowledge is retrieved (Bartlett, 1932; Bower, Black, & Turner, 1979; Brewer & Treyen, 1981; Schank & Abelson, 1977).	Student's prior historical knowledge should be probed via discussions and assignments in order to determine their perspectives (i.e., schemas and scripts) on material. These perspectives should then be the starting point of historical learning and instruction. Where no previous perspective exists, the teacher should focus on relevant examples and experiences that will assist in developing rich and integrated perspectives (i.e., schemas and scripts).

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The first principle simply states that the degree to which knowledge and experiences are processed is related to the quality of the remembrances that result (Craik & Lockhart, 1972). Craik and Lockhart referred to this phenomenon as "depth of processing," where depth refers to the degree of integration of knowledge with prior knowledge, the degree of mental effort exerted, and the quantity and quality of mental resources utilized during a learning event. For example, a preservice teacher surfing the Internet collecting URLs of historical sites that contain primary sources requires little processing other than the use of search strategies. However, creating a written synopsis of the obtained sites, including a concept map relating the various threads found within the sites to the National Council for the Social Studies' (NCSS) 10 thematic strands, would require significantly deeper processing to accomplish. This increased mental processing would result in increased meaningful learning and retention.

An important aspect of the application of this theoretical principle is the realization that it is the cognitive activity that is paramount, not the physical activity. That is, there is a current emphasis in social studies on "doing" history (Levstki & Barton, 2001; see also Crocco, 2001, and Mason et al., 2000). The key to "doing" history, however, is not the physical manipulation of historical objects or the construction of historically related web sites, but rather, the development of the cognitive resources and skills (processes) typical of historians (Wiley & Voss, 1996). Nevertheless, the physical manipulation of historical objects or the construction of historically related web sites could be beneficial to learning and instruction if the tasks are oriented toward fostering deeper processing (see Braun & Risinger, 1999). If, for instance, a social studies teacher educator's students were engaged in constructing a web site related to the 100 year history of a nearby town, the task at hand would require little cognitive processing and thus would result in little student learning if the task was simply the accumulation and demonstration of historical artifacts (e.g., pictures, newspaper articles, movies, or letters). However, if students are required to interview town members regarding specific events and to describe, explain, and evaluate these specific events through the voices and primary sources of the town members, then students would be engaging in deeper processing, resulting in rich learning. Thus, the focus of the teacher, whether the teacher is a social studies teacher educator, in-service teacher, or preservice teacher, should be on the cognitive processing that the task at hand demands, not on the surface characteristics of the task (i.e., use of technology, "hands-on" manipulations, use of primary sources).

This focus on the cognitive processing involved in task completion leads to the second principle, which states that processing that is elaborate (i.e., processing that requires relating one's prior knowledge to the task at hand) leads to increased learning. Specifically, elaborative processing that is self-generated and personally relevant results in increased memory retention (Anderson & Bower, 1972; Stein & Bransford, 1979). Thus, students learn more, both qualitatively and quantitatively, when they relate and integrate their own personal histories (i.e., autobiographical knowledge) to current experiences, especially when the students are responsible for the "relating" and "integrating," as opposed to when the teacher simply provides relevant examples.

It is important to maintain the link between this principle, elaborative processing, and the previous principle, depth of processing. Elaborative processing is most effective when the student is actively elaborating and when the elaborations are personal, as these contingencies lead to deeper processing. Continuing the example of constructing a web site for a 100-year-old town, students will benefit more from investigating a particular event, building, or person if they have a personal relationship to this event (e.g., they have marched in the Memorial Day parade),

building (e.g., their favorite ice cream parlor), or person (e.g., grandmother or father). If this is not possible, the student can still increase his or her elaborations by visiting the particular event, building, or person. Finally, if this is also not possible, the student will benefit if asked to relate (i.e., compare, contrast, analyze) the specific event, building, or person to a specific event, building, or person that they know. Thus, while it is often stated that students need to relate current experiences to prior knowledge, it should be stressed that students themselves should be encouraged to make these connections (i.e., through discussions, activities, reflections), and not to have these connections simply provided by the teacher.

While depth of processing and elaborative processing deal primarily with the mental processing aspect of cognitive psychology and information processing theory, the third principle addresses an aspect of mental structure; specifically, that individuals organize knowledge according to schemas and scripts, which influence how new knowledge is encoded and prior knowledge is retrieved (Bartlett, 1932; Bower, Black, & Turner, 1979; Brewer & Treyen, 1981; Schank & Abelson, 1977). A schema is a prior knowledge organizational structure that represents a generalization or abstraction of the regularities in categories. Schemas, or schemata, do not represent specific objects or artifacts but, rather, are categorical generalizations of objects or artifacts inferred from experience. For example, historical maps contain certain stereotypic characteristics including boundaries, legends, symbols (e.g., points, lines, area patterns, and colors), projections, coordinate systems, and abstraction. As preservice students work with maps, they will develop their own map schemas. These map schemas based on their experiences with maps will be idiosyncratic in nature; that is, their schemas will not be "truthful" representations of the maps they have seen but, rather, will be personal generalizations.

Similarly, a script is a prior knowledge organizational structure that represents a generalization or abstraction of the regularities present in events. As with schemas, a script does not represent a specific event, but rather, a generalized procedure inferred from experience. For example, a person's script for voting may include (a) go to voting location, (b) stand in line, (c) sign in and show identification, (d) enter voting booth, (e) vote, and (f) leave. If a person has never voted, then his or her script will be based on second hand accounts (i.e., through discussions or reading); however, a student who has voted previously will develop a more personal and well-developed script. It is important to remember that in both cases, the map schema and the voting script, the organizational structures do not relate to specific objects or events but, to maps and voting, in general.

An important aspect of these mental structures, schemas and scripts, is their ability to influence both how an individual perceives a given situation and what they infer from that situation. The importance of these prior knowledge organization structures on current understanding and behavior cannot be overemphasized. For example, the expectations, understanding, and planning of the students beginning the web site for the 100-year-old town will be constrained and shaped by their current schemas and scripts. Students with significant web experience (e.g., programming, web design, server administration) may anticipate the site as having text, graphics, searchable databases, and streaming audio and video. These experts may see the process of obtaining interviews as involving videotaping and then streaming these tapes on the web site. Differentially, students with little or no web experience may anticipate a site with text and graphics only. Also, a student with extensive experience with primary sources and the process of using these sources to find intersections between various threads or themes may view the data collection process more as an investigation, while a student who has never collected data may view the process as simply acquiring as many resources as possible. These brief examples of the influence of scripts and schemas demonstrate the powerful influence they have on

comprehension and behavior.

The effective use of schemas and scripts, however, depends on (a) the explicit fostering of schemas and scripts, (b) the activation of appropriate schemas and scripts to facilitate connections between prior knowledge and new experiences, and (c) the adjustment of instruction to take into account student's existing schemas and scripts. The explicit fostering or development of schemas and scripts is dependent upon students' repeatedly experiencing the objects or events. Mason et al. (2000) stated, "Methods faculty can use archives such as these [e.g., Virginia Center for Digital History, Virtual Jameston, Race and Place] to model lessons that engage students in historical inquiry." In order to effectively develop appropriate schemas and scripts in preservice teachers, this modeling should include several and diverse modeling episodes from which students can generalize, explication of key issues and processes in completing the modeled task, and an opportunity to use the archives to practice what was learned from the modeling.

In addition to developing new schemas or scripts, it is important for students to activate relevant schemas and scripts when engaging in an activity. Teachers need to be explicit in assisting the activation of student's relevant schemas and scripts through advance organizers, introductory activities, or direct instruction. Crocco (2001) stated, "If we believe that technology can leverage more powerful learning in social studies, then we need to be sensitive to contexts of many kinds." One view of this "context" is the student's perspective that is attainable through his or her scripts and schemas. Finally, social studies teacher educators and preservice social studies teachers must take into account student's prior knowledge, schemas and scripts when designing, implementing, and evaluating instruction. Thus, a central tenet of learning was stated by Ausubel (1968), "The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him [or her] accordingly" (p. vi).

Thus, we have discussed three important theoretical principles (i.e., depth of processing, elaborative processing, and schemas and scripts) that contribute to theoretical formation (i.e., information processing theory) and allow for informed theoretical application (i.e., social studies teacher education). The reason for investigating this theoretical foundation is to provide an answer to why we teach the way that we do and why we recommend that others do as well. If we revisit an earlier quote and question—"The challenge in preparing social studies teachers to use technology begins by highlighting how technology can be used to encourage inquiry, perspective taking, and meaning making" (Mason et al., 2000), and "On what basis is the promotion of 'inquiry, perspective taking, and meaning making' made?"—The question is now answerable. Inquiry promotes depth of processing, perspective taking promotes elaborative processing, and meaning making promotes schema and script application (as well as deep, elaborative processing). In addition and more importantly, this theoretical foundation allows the creation of new and creative pedagogy that goes beyond the application of specific activities. Although cognitive psychology, and information processing particularly, provides an efficacious theoretical foundation for the use of technology in preparing social studies teachers, it is not the only such theoretical foundation.

Constructivism. Constructivism as a philosophical and theoretical foundation represents a break from the traditional assumptions within social studies of "passive, teacher-dominated approaches emphasizing recall and regurgitation" (Crocco, 2001). Constructivism employs a more flexible, culturally relativistic, and contemplative perspective in which knowledge is a personal construction based on social experience. According to Fosnot (1996),

> Learning from [a constructivist] perspective is viewed as a self-regulatory process
> of struggling with the conflict between existing personal models of the world and

discrepant new insights, constructing new representations and models of reality as a human meaning-making venture with culturally developed tools and symbols, and further negotiating such meaning through cooperative social activity, discourse, and debate. (p. ix)

Thus, constructivism emphasizes the active role played by the individual learner in the construction of knowledge, the primacy of social and individual experience in the process of learning, and the realization that the knowledge attained by the learner may vary in its accuracy as a representation of an objective reality. The adoption of this theoretical foundation changes the nature of the social studies from one of a search for objective truth to one of a search for valid perspectives.

Unfortunately, constructivism is not a unitary theoretical concept, resulting in several different "types" of constructivism. Generally, these different types of constructivism are categorized into three main genres, cognitive constructivism, social constructivism, and radical constructivism (see Good, Wandersee & St. Julien, 1993; Moshman, 1982; Phillips, 1995). It is beyond the scope of this article to discuss all three types, and thus only one type of constructivism will be addressed, social constructivism. Social constructivism emphasizes the social nature of knowledge and the belief that knowledge is constructed through social interaction and is a shared rather than an individual experience (Prawatt & Floden, 1994) (see Figure 3). This position is exemplified by Bakhtin (1984): "Truth is not to be found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction" (p. 110). Truth, in this case, is a socially constructed and agreed upon truth resulting from "co-participation in cultural practices" (Cobb & Yackel, 1996, p. 37).
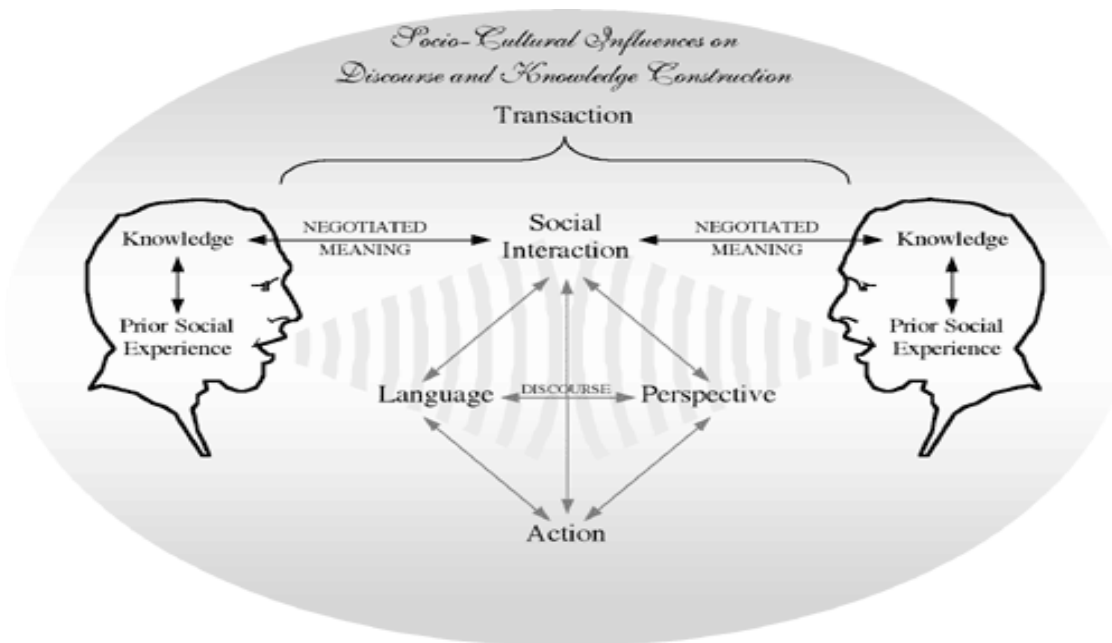

Figure 3. A diagrammatic representation of social constructivism in which meaning is negotiated through the social transaction of prior social experiences and current discourse.

The philosophical and empirical investigations of social constructivism have resulted in many principles regarding the nature of human thought and behavior. Three of these principles will be discussed, along with their application to social studies teacher education to demonstrate the

power of utilizing a sound theoretical foundation (see Table 2).

Table 2. A Series of Constructivist Theoretical Foundation Examples That Relate Theoretical Principles to Theoretical Applications Within Social Studies

Theoretical Principles	Theoretical Application
Knowledge is the result of active cognizing by the individual in a social environment (Cobb & Yackel, 1996; Prawat, 1996).	Students should be motivated to reflect on their experiences, to create understanding (and thus knowledge), to evaluate their understanding, and to explain their understanding to others.
Knowledge acquisition is an adaptive function designed to organize one's experiences (Fleury, 1998; Prawat & Floden, 1994).	Students should be confronted with problems or discrepant events that motivate the students to seek, test, and assess answers within socially collaborative environments.
Knowledge is the result of language-based social interaction (Gergen, 1995; Vygotsky, 1978).	Teachers should create activities that necessitate students interacting verbally and students should communicate often with both novices and experts in their field of study.

The first principle reflects constructivism's emphasis on knowledge construction being an active process of social interaction and personal reflection and not a passive process of knowledge absorption. Knowledge cannot simply be transmitted from teacher to student or individual to individual; rather, knowledge is built up through the synthesis of social experiences. That is, knowledge is constructed in response to social interactions through social negotiation, discourse, reflection, and explanation—all active processes. According to the NCSS's National Standards for Social Studies (1997), active knowledge construction results from reflective thinking, decision-making, interactive discourse, and self-regulated learning. As Aristotle stated, "For the things we have to learn before we can do them, we learn by doing them."

This active versus passive perspective leads to an emphasis on activity. This activity requires both social activity, as the source of knowledge and meaning construction, and individual mental activity, as the mechanism of remembrance. While knowledge construction involves both social and individual processes, "the process of personal meaning-making takes a backseat to socially agreed upon ways of carving up reality, however. The community is the prime source of meaning for objects and events in the world" (Prawat,1996, p. 220). Revisiting the previous example of building a web site for a 100-year-old town from a constructivist perspective, students will not learn how to gather and interpret source materials, organize the source materials into a meaningful whole, or create a web page by being told how to do so. Learning these skills requires that students actually engage in the activity, specifically, building consensus on what sources to include, interviewing observers, reflecting on the historical accounts that are being generated, and working to understand web design. Thus, students must be engaged in various forms of active discourse, provided the opportunity to reflect on their knowledge construction and, ultimately, to verbally express that constructed understanding.

This emphasis on activity provides the impetus for the second principle, that knowledge construction serves the purpose of organizing our experiences, a form of adaptation. An

important corollary to this principle is that knowledge construction is not designed to yield a mirror image of one's experience or an objective reality. Rather, knowledge construction yields a personalized version of one's experience as these experiences are filtered through one's prior knowledge, social norms, and culture. This view of knowledge construction results in perspectival knowledge, not factual knowledge. This multi-perspective orientation necessitates the realization that knowledge is not "true" or "false," but rather is viable or not viable. Viability results from the usefulness of knowledge in the navigation of the social milieu, agreement with social or community knowledge norms, and/or the fulfillment of one's needs. Furthermore, the determination of viability can only be made through usage that is evaluative, such as problem solving, questioning, inquiry, and the resolution of various forms of dissonance.

The implications of knowledge as socially subjective, observer dependent, and dissonance-based are that there are multiple perspectives of what is true, context matters, and ideational conflict is productive. Within social studies the current shift from "history as fact" to "history as perspective" reflects the knowledge that history is interpretive, culturally subjective, and dynamic. Teachers and students need to become skilled in the interpretive nature of the social studies and deemphasize the memorization of dates, facts, and stories. This emphasis on interpretation necessitates a more active acknowledgement of the influences of culture and context. Indeed, all lived events occur within a cultural context that influences the understanding of that event. Furthermore, in addition to acknowledging the cultural context of the event, the cultural context of the learner (e.g., student, teacher, reader) must be taken into account. Therefore, teachers and students must begin to interpret events by actively examining the context of the event itself as well as their own context including personal and social biases, mores, and understandings.

Finally, a salient avenue for examining multiple perspectives and context relations is through strategies that emphasize questioning, investigation, analysis, and critique. For example, for the students engaging in the web site design for the 100-year-old town, it is important that they realize that multiple perspectives will exist relative to the town at any given period in time and that understanding the town does not entail determining which perspective is correct, but rather that all perspectives intersect to create the town. In addition, students must interpret this multi-perspective endeavor within the larger context of the nation and the world. All of these interpretations require constant discourse with interviewees, other students and teachers, and a careful and critical evaluation of related primary sources. Thus, students must become skilled interpreters of both their own experiences and the experiences of others through self-reflection, critical analysis, and social interaction, in order to adequately organize these experiences.

The first two principles that state that active knowledge construction is designed to organize one's experiences into coherent meanings leads to the final principle that states that the key mechanism for creating meaning is language (oral and written). According to Gergen (1995),

> To put the conclusion more bluntly, all that we take to be the case—our propositional representations of everything from physics to psychology, geography to government—gain their legitimacy not by virtue of their capacities to map or picture the world, but through processes of social interchange [language]. (p. 24)

While Gergen is a bit of an extremist within the social constructivist community (see Prawat, 1996), his focus on language as an important aspect of knowledge construction is a shared premise. According to Vygotsky (1986), language is a cultural tool, ascribed with cultural knowledge or memes (see Dawkins, 1998), used by the individual in social interactions to

become a member of that culture. Language in social constructivism, however, does not serve to "transmit" knowledge between individuals but, serves as a stimulus to negotiation, action, and knowledge construction. Language provides an avenue for both confusion, as when a statement made by another does not coincide with one's or society's understanding, and comprehension, as when a dialogue results in an individual testing meanings through social exchange. "Language acquires both its social value and its meaning largely from the way in which it is used by people in specific contexts"(Gergen, 1995, p. 35). Language, then, provides the mechanism for translating external verbal exchanges into internalized meanings. Garrison (1998) stated, "Thinking...is represented as an internalization of social dialogue" (p. 57), while Vygotsky (1978) explained, "The history of the process of *the internalization of social speech* is also the history of the socialization of children's practical intellect" (p. 27, italics in the original).

This focus on the use of language in the construction of knowledge brings to the forefront of social studies education the need to engage preservice teachers in the conversation of history and in the practical application of historical methods. Social studies teacher educators must disengage from the unidirectional telling of historical stories and begin to entrust preservice teachers with a discussion of the development of history. This discussion or discourse may take many forms. According to Levstik and Barton (2001),

> History, too, has its own forms of oral discourse, including expositions, explanations, justifications, narratives, and dialogue. Each of these genres uses historical content and processes as the substance of discourse. Making sense in history, then, is at least partially constructed within (or in opposition to) this discourse, as participants test out ideas, listen to other possibilities, ask questions, and challenge interpretations. (p. 22-23)

It is imperative to stress that dialogue does not imply simple discussing and telling, but rather, includes the analysis of ideas, the synthesis of verbal sources, the evaluation of the intersection of multiple sources, and reflective explanation of one's own thoughts and understandings. Revisiting the social studies educator whose students are engaged in the construction of a web site concerning a 100-year-old town one last time, an emphasis should be placed on engaging the students in dialogue. Dialogues at multiple levels of complexity and sophistication, including with persons inhabiting the town during various time periods, other students, expert historians, the teacher, and themselves. Engaging in these different dialogues allows the student to construct knowledge through interacting with others and other's perspectives, by experiencing multiple contexts of language usage, and by using discourse to provide the next direction of inquiry. Thus, social studies teachers should hone the tool of language, in both themselves and their students, so that the tool of language may be used to create knowledge that is both meaningful and valid.

This discussion of constructivist principles (i.e., active knowledge construction, organized knowledge construction, and language-based knowledge construction) assists in elucidating a theoretical foundation for the social studies. Fleury (1998) summarized this foundation:

> The constructivist need to negotiate knowledge within a social community ultimately requires democratic social practices. The tenets governing the process of doing this kind of science are the virtues of democracy: a search for workable truths, personal humbleness in the power of evidence, toleration for different perspectives and interpretations, and an acceptance of the tentativeness of what is held to be true at any particular time. (Bronowski, 1965, p. 172)

As stated earlier, a theoretical foundation for social studies provides an answer to why we

employ various teaching strategies in the social study's classroom and why we recommend those strategies to others. If we again revisit the earlier quote and question: "On what basis is the promotion of 'inquiry, perspective taking, and meaning making' made?"—the question is now answerable from within a constructivist theoretical foundation. Inquiry promotes active learning, perspective taking promotes contextually sensitive knowledge organization, and meaning making results from language usage. The use of the constructivist theoretical foundation provides the basis for constructing new, creative and effective pedagogy that exceeds the blind application of specific activities.

Two theoretical foundations have been briefly described as alternatives for constructing social studies pedagogy, cognitive psychology, and constructivism. Each has its own flavor or tone, and neither is "correct," as theoretical foundations are open to change and challenge.

Conclusion

Mason et al. (2000) stated, "Researchers should continue to evaluate the influence of technology on social studies, and should seek to provide exemplary models for the infusion of technology within social studies methods of instruction." What is missing from this charge is the basis for proffering these exemplary models. Should social studies pedagogy take a pragmatic stance of offering what seems to work today, or should social studies take an informed stance that provides the necessary foundation to create pedagogy that is molded to specific contexts, contents, and constituents? It is time to choose. It is time to choose a foundation upon which to build the NCSS's "vision of powerful social studies teaching and learning" (1994, p. 162).

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