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**CI 6112 Curriculum Development and Organisation****A Constructivist Curriculum Model: Extract** **What Constructivist Theory And Brain Research May OfferSocial Studies****Sue Gibson and Roberta McKayUniversity of Alberta****Abstract**

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| *Since both brain research and constructivist theory are beginning to impact current North American social studies curriculum, this article summarizes insights from these two areas that should influence social studies for the 21st century. Particular attention has been paid to instructional innovations that are consistent with findings from brain research and application of theories of constructivism. Arguments have been made for a social studies curriculum that is based on the classic reflective inquiry conceptualization of social studies because it stems from a constructivist position and is supported by brain-based views of teaching and learning.* |

 **During the 1990s, brain research exploded and educators began to explore the implications of the research for teaching and learning (Caine and Caine 1991). Even though much of the brain research was disease oriented and does not apply directly to educators, we must pay attention to the ideas and paths it suggests as we continue to consider successful ways to facilitate learning. Constructivist theories, on the other hand, have a long tradition in disciplines such as philosophy and psychology. Constructivism has also strongly influenced education through recent paradigm shifts in assessment (Alleman and Brophy 1998), and in language arts (Bruner 1986), science (Yager 1991), and mathematics (Schifter 1996) curriculum and teaching. It is only very recently however, that constructivism is appearing in the social studies literature (Scheurman and Yell 1998). We believe that there is unrealized potential for constructivist theory in social studies.**While other core subjects have moved toward student-centered, experiential, hands-on learning and constructivist learning strategies, social studies has remained largely teacher centered (Hope 1996). Much of social studies teaching and learning is geared to the simple transmission of information through the use of a single textbook, the lecture method and teacher controlled question and answer strategies. However, a more student-centered, constructivist approach in social studies would incorporate multiple and varied sources of information, increase emphasis on group processes, and encourage student generated questions to guide inquiry. By engaging with citizenship concepts in this way, children would learn to view issues and problems from different angles and identify multiple perspectives, as well as develop their own viewpoints. In essence, social studies knowledge would be constructed when children were able to form their own interpretations of evidence and submit them for review (Scheurman 1998). In this way, the application of constructivist theory to social studies would result in the development of deeper understandings of problems and procedures in social studies and rigorously defensible beliefs about important issues in the disciplines. In this article we contend that there is a significant relationship between constructivist theory and brain research, with brain research providing a basis for some of the theoretical underpinnings of constructivism. In support of this contention, we review some of the key ideas from constructivist theory and brain research and highlight insights from each of the areas as they impact curriculum planning and design in social studies.**Insights From Constructivism For Curriculum Development****Constructivism is a theory about the nature of knowledge. While there are different interpretations of constructivism, their common denominator seems to be a belief that knowledge is created by people and influenced by their values and culture (Phillips 1995).****The cognitive view of constructivism, exemplified by Piaget, posits that people develop universal forms or structures of knowledge that enable them to experience reality. Knowledge is individually constructed and is based on the knower's intellectual development as she experiences reality during physical and social activity. In cognitive constructivism, the teacher's role as facilitator is to pose problems that challenge children's conceptions of reality.****The social view of constructivism, exemplified by Vygotsky, posits that knowledge is co-constructed through social and cultural contexts, rendering reality non-objective. Knowledge socially constructed as reality is created during physical and social activity. The teacher's role is to be a collaborator who participates with the children in constructing reality by engaging in open-ended inquiry that elicits and addresses student misconceptions.****Curriculum development that proceeds from a constructivist perspective would recognize the centrality of the following four tenets. The first of these tenets is that the human mind has the ability to represent through symbols. Language, as one of our major symbol systems, is recognized as having a primary relationship to thinking and learning. Meaning is also created and expressed through other symbol systems such as art, music, drama and dance. The second major tenet is that constructivist theory focuses on the individual as an active constructor of meaning rather than a passive recipient of knowledge. Thirdly, learning is viewed as a complex process involving the interaction of past experience, personal intentions, and new experience. Finally, social context is recognized as a crucial element in the meaning making process. Brooks and Brooks (1993) argue that there are principles of constructivist pedagogy that also must be considered. These include: posing problems of emerging relevance to learners; structuring learning around primary concepts; seeking and valuing children's points of view; adapting curriculum to address student suppositions; and assessing children's learning in the context of teaching.****Insights from Brain Research for Curriculum Development**Current views of the brain, based on advances in the area of neuroscience, suggest that we think of the brain as a complex, whole, and interconnected system (Edelman 1992). Since everything in the body, including the brain, is connected to and affected by everything else, right-brain, left-brain theories and triune brain theories are no longer considered to be adequate explanations of how the brain functions. We now know a great deal more about the connection between the brain and learning; it is these connections that we believe can inform curriculum development. While brain research is extensive and technical in nature and it is not our intention to review it in this article, the three areas briefly touched upon below seem particularly significant for learning.The brain innately seeks meaning through seeking patterns. The patterns give context to information that may otherwise be discarded as meaningless (Coward 1990). Freeman (1995) suggests that it is the making of familiar connections (relevance) and the locating of conforming neural networks (pattern making) that are critical to the formation of meaning. For younger children, learning that is hands-on, experiential and relevant enables patterns to develop. Relevance helps children to make personal connections between what they already know and the work they do in class. Relevance can be created through linking with prior learning and experiences, and context and pattern making may result from the use of universal concepts and core organizing principles (Jensen 1998).Experience has been found to affect the physical structure of the brain, a phenomenon known as plasticity. The brain grows new connections with environmental stimulation (Diamond 1988) and modifies itself structurally depending on the amount and type of usage (Healy 1990). Each new stimulation and experience rewires the brain. Enriched environments enable the brain to grow more neural connections, thickening the cortex of the brain, while less stimulating environments actually have a thinning effect on the cortex (Diamond and Hopson 1998). Enriched environments provide challenge by including reading and language, motor stimulation, a focus on the arts, stimulating surroundings, and a wide variety of approaches to thinking and problem solving. Exposing children to a variety of problem solving approaches acknowledges the complexity of the brain. Children should be encouraged to explore alternative thinking, multiple answers and creative insights. Because experience structurally changes the brain, the more we learn, the more unique our brains become. Neural pathways that help us to excel at thinking skills are very specific and while a student may succeed at one type of thinking, she may have difficulty with another.Emotions cannot be separated from learning, and in fact, may drive learning. Emotions help us make better value-based decisions as all values are emotional states. Emotions generate and drive the execution of our goals and plans (Freeman 1995). Emotions drive attention, create meaning, and have their own memory pathways (LeDoux 1994). Chemicals activated by emotions help us recall things better thereby affecting long-term memory. When emotions are engaged the brain learns fastest and easiest during the early school years.**Implications of Constructivist Theory and Brain Research for Curriculum Planning and Design in Social Studies**Our views of children and how they learn are embedded in social studies curriculum. The rapid advances in brain research in recent years have provided some insights that cannot be ignored when considering how children learn and what this means for future curriculum planning and design. These insights are only beginning to be considered in the educational community and have not been widely incorporated into social studies curriculum planning and design (McKay 1995). As theory, constructivist views have influenced theoretical traditions in social studies, such as reflective inquiry (Barr, Barth and Shermis 1977), and do have implications for teaching and learning in social studies. While the reflective inquiry conceptualization of social studies is not new and does indeed stem from a constructivist position, that tradition seems to be more of a theoretical stance than a practical application in many social studies curriculum documents and classrooms (McKay 1993).The recent brain research provides some physiological basis for much of a constructivist view of knowledge and the role of the knower in constructing that knowledge. We contend that tenets of constructivist theory supported by brain research necessitate radical change in the design and implementation of social studies curricula. Such curriculum change would include at its core the recognition and celebration of multiple realities and multiple ways to create, express and represent those realities. Such curriculum change would recognize and celebrate the child as an active constructor of his or her own meanings within a community of others who provide a forum for the social negotiation of shared meanings. Such curriculum change would reflect and celebrate the complexity of the meaning making process and require complex learning environments that would enable such meaning making.Taken together, constructivist theory and brain research offer compelling support for renewed examination of reflective inquiry as a powerful curriculum model for social studies. Curriculum and instruction approaches utilized today that are called "inquiry" must be closely examined to determine if they in fact do incorporate the constructivist elements of the reflective inquiry approach as proposed in the classic model of Barr, Barth and Shermis. Social studies from a reflective inquiry orientation is grounded in the belief that people must interact with ideas and things in order to make knowledge for themselves, thus the knower and the known are closely intertwined. The reflective inquiry approach to social studies emphasizes students investigating, inquiring and thinking for themselves. This approach is skill-based citizenship education in which students are provided with experiences in order to acquire competence in skills such as inquiry, communication, critical thinking and decision making. From this perspective, students play a more active role in learning about citizenship as they actually engage in the skills needed for their future roles. The process of reflective inquiry begins with the interests of the students, as problems that directly affect their lives within a specified socio-political context are central. Students play an active role in conducting the investigation into these problems with teachers acting as facilitators. The outcome of the investigation is not known ahead.While, the reflective inquiry tradition of social studies is a powerful model for citizenship education, we contend that it remains an unfulfilled possibility in many social studies curriculum documents and classrooms. We believe that constructivist theory, now supported by brain research, offers social studies educators a renewed opportunity to make inquiry teaching and learning in social studies a reality.**References**Alleman, Janet and Jere Brophy. "Assessment in a Social Constructivist Classroom." *Social Education*. 62, No. 1 (Jan 1998): 32-34.Barr, R.D., J.H. Barth, and S.S. Shermis. 1977. *Defining the Social Studies*. Arlington, VA: National Council for the Social Studies.Brooks. Jacqueline and Martin G. 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