Dewey, Technological Thinking and the Social Studies: The Intelligent use of Digital Tools and Artifacts

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Abstract

Since the emergence of computer technologies in education in the 1970s, social studies teacher educators have advocated for the effective use of digital tools and artifacts (DTAs) in student learning. After nearly four decades, researchers still report low-level cognitive uses and overwhelmingly traditional teaching methods. Perhaps one reason for the lack of progress is the absence of clear guidelines and theoretical constructs. The purpose of this manuscript is to place the use of DTAs within the context of John Dewey's philosophy, and along the way, articulate guidelines for integrating technology in the social studies. By constructing a philosophical framework based on Deweyan thought, one can test research and ideas, perhaps leading to the more purposeful and effective use of these tools and artifacts in teaching and learning. Philosophy is an instrument for criticizing and reconstructing human activities, and scholars belatedly credit Dewey as a pioneer in the technology branch.

Keywords: John Dewey, Social Studies, Technology

Introduction

In the widest sense, philosophy is a systematic and rigorous means to study, criticize, reconsider, and affect a perceived problem. As such, it is never the answer to a problem or an end to something. Instead, it is a tool for casting a wider net, considering expanded ranges of options, and evaluating consequences against a backdrop of a longer time period or in light of overarching phenomena (Dewey, 1929b). Because the social studies as a formal body of knowledge (i.e., content) emerged from the philosophy of John Dewey (Egan, 1983; Fallace, 2009; Rossi, 1995; Vinson, 1999), it can also logically serve as a useful means (i.e., method) for addressing the problem of why DTAs have not transformed social studies teaching and

learning. In fact, one of the most defining—and perhaps least understood—characteristics of Deweyan philosophy is its flexibility in describing content as method in the context of human experience in the natural world. As individuals attempt to make meaning of the world, they are testing experiences and growing through intelligent action. Consequently, within this philosophical paradigm, educators have failed to fully *naturalize* DTAs in social studies experiences to enhance intelligence.

Despite persistent calls for the integration of digital technologies, social studies education researchers still report low-level cognitive uses and overwhelmingly traditional teaching methods (Beck & Eno, 2012; Combs, 2010; Shively & VanFossen, 2009; Shriner, Clark, Nail, Schlee, & Libler, 2010; Whitworth & Berson, 2002). Subsequently, they often point out the barriers to technological integration such as inadequate teacher training, teacher attitudes about technology, teacher demographics, the availability and accessibility of technology, and limited school technology support services (Debele & Pleyvak, 2012; Journell, 2009; Lacina, Mathews, & Nutt, 2010; Lee, Doolittle, & Hicks, 2006; Waring, 2010). Furthermore, the social studies and technology research compendium almost exclusively justifies technology integration for two main reasons: First, technology is ubiquitous in the world beyond school walls, and therefore provides an opportunity to engage in authentic instruction, particularly for the younger generations already immersed in its affordances. And second, constructivist learning theory offers a way for understanding how students acquire knowledge using digital tools and artifacts (DTAs) (Doolittle & Hicks, 2003). Over the last several decades, public officials and educators have expended considerable amounts of money, time and energy to address the barriers to technology integration, yet the results have been uneven at best. Perhaps it is time to view the problem through a philosophical lens.

Dewey and Social Studies Aims

As a central aim of the social studies, scholars often address Deweyan epistemology (theory of knowledge) in the context of preparing students for democratic citizenship (Carpenter, 2006; Parker, 2010a, 2010b; Provenzo Jr., 1979; Stanley, 2010; Thornton, 2005). Throughout his long and fruitful life, Dewey articulated a theory of knowledge where individual citizens make meaning by coming together, and then identifying and solving the problems of "associated living." While the ordinary experiences of everyday life offered the richest sources for educative experiences, Dewey (1916/2007) insisted that modern living was too complex, and only schools could effectively provide the conditions for personal growth for young learners.

For Dewey (1916/2007), schools served as an extension of home life and as a societal laboratory for providing experiences for the immature mind. Despite the "superficial" nature of school organization (p. 8), no other social institution so closely mimicked the wider relationships of communal living. Dewey recognized that each student had unique interests, and it was important for the teacher to use those interests as a springboard for intelligent growth resulting in discipline and more growth. The curriculum, which was an inherited collection of subject matter, functioned as a *method* for this movement forward. And further, to make the environment as natural as possible, teachers were to value practical and manual activities over abstract ones because they connect more fully to occupational life.

First, the teacher's role was to methodically facilitate learning experiences through a spiraling curriculum where certain ideas and themes would be revisited in a deeper and more intellectual fashion. Further, these learning experiences favored manual and practical activities because they offered more direct natural connections to human development and survival. Second, modern social life was messy and difficult to navigate with dead ends and pitfalls, so teachers were also charged with guiding students away from experiences that led to stunted growth. The challenge was to develop and nurture student interests, which would then motivate them to learn more and eliminate a traditional approach where teachers or some outside authority would coerce students into doing something uninteresting. And third, schools brought together students from different social classes and a multitude of backgrounds, which ultimately enriched the experiences for all. Although democracy and democratic participation were worthwhile social aims, perhaps more importantly, Dewey also provided a *philosophy* of education where democracy also served as a *means* for intelligent growth (Dewey, 1938, 2007; Tanner, 1997).

Thinking as Doing

Deweyan philosophy starts with the premise that living organisms engage in a series of transactions—or experiences—with the natural world, which results in individual growth. The process of *living* presents a continuous flow of experiences fluctuating within the vicissitudes of nature. We are constantly oscillating between disequilibrium and equilibrium adjusting to changing circumstances as new experiences are checked against older ones, and immediate experiences are engaged to predict future ones. Within this system of ideas, humans are not the observers as in traditional philosophy, which results in a dualism between the mind and body. In Dewey's epistemology, humans are active participants who purposely experience growth with emotion, intellect and physical sensation. This

unified view holds significant consequences for educating the whole student (Stuckart & Glanz, 2010).

Individual organisms experience the world in both thoughts and actions, which suggests some assumptions about education. First of all, physical activity becomes a way of thinking. One does not think with the brain in one context, and then do something in another at some later time. It is a *continuous* experience like when an artist moves a brush while considering previous painting experiences and predicting future strokes. The same is true for the cook and cooking, the baseball player and playing, and the student and studying. Second, an epistemology based on experience inherently values movement and doing. We experience the world with all of our senses and try to make meaning of what is going on whether we touch, hear, taste, see, or smell something. Third, the development of skills and habits become a vital part of the growth process as individuals mature. Growing means that one develops new and more advanced ways to both test and reflect on experiences with an eye for future growth. Further, habits are essential for freeing up memory for more important and unique challenges. And fourth, growth occurs most efficiently and vigorously when one solves real problems using inquiry (Dewey, 2007; Pring, 2007).

In *Experience and Nature*, Dewey (1929a) described in detail this instrumentality or technological way of thinking. The word, nature, does not refer to how we often use it in a narrow way to denote flora and fauna, but rather in a wider context of how an individual, human organism transacts with the environment, including and especially in a social sense. Dewey posited that thought as scientific theory is really a theory of nature.

Dewey's theory of nature rested on three assumptions. First, some human transactions occurred informally—not by deliberate reflection—and result in some sort of ending. Moreover, endings only existed within the realm of consummation, whether they are enjoyable or not. Second, other types of transactions were in the process of undergoing, and hence were "indeterminate" and "unfinished" (p. 159). These types of transactions had the potential to become endings or fulfilled at some later point in time perhaps by morphing with or combining in some measure with other transactions or events. And third, when the individual was able to regulate, direct, sequence, order, and in some way control these events with an end-in-sight or a conclusion in-view, the individual was acting *intelligently*. Therefore, embedded within Deweyan philosophy—known by many names such as theory of nature, thinking, instrumentality, pragmatism or technology—is a theory of intelligence.

This deliberate control and regulation of natural events or transactions resulting in intelligence is also described as a process of "revealing," "making sure," (Dewey, 1929a, pp. 154, 166) or "warranted

assertibility" (Dewey, 1941, p. 169). From the perspective of the learner, it is a self-correcting activity as one grows and adjusts while engaging in inquiry. Consequently, the quest for truth is not some concrete, fixed, existential property, but rather the regulating of changing events toward some desired fulfillment. Belief and knowledge are constantly in flux as new ideas or essences undergo this "inner experimentation" (Dewey, 1929a, p. 166). Essences do not become existences until they are realized in communication with others. In other words, thinking transforms into meaning only through discourse:

Through speech a person dramatically identifies himself with potential acts and deeds; he plays many roles, not in successive stages of life but in a contemporaneously enacted drama. Thus mind emerges. (Dewey, 1929a, p. 170). Essences, existences, and the emergence of the mind are not separate and distinct events. They are part of a continuum in the ebb and flow of growth. Further, humans utilize tools as part of the growth process where technology plays a vital role.

Etymological Origins of Technology

The term, technology, originated in Ancient Western philosophy. Derived from the Greek words, *techne* meaning "art," skill," or "craft," the word also signified a form of knowledge. Socrates asserted that *techne* was tethered to *logoi*, meaning "words," "speech," and "reason" (Mitcham, 1994, pp. 117-118). Throughout history, scholars employed the term to denote constructing activities, or the knowledge of how to construct and use artifacts, or the artifacts themselves. The modern usage of the term, roughly the practical application of knowledge in an engineering sense, did not fully emerge until post-World War I. In the 19th century, terms such as "inventions," "mechanic arts," "useful arts," and "science" would have been far more common to use than "technology" (Nye, 2006, p. 12).

The 19th century also provided the foundation for the sub-discipline of a philosophy of technology, although it was not widely recognized until the 1970s. Karl Marx wrote extensively about the modes of production and the effects of technology on these modes. In 1877, German philosopher, Ernst Kapp, coined the phrase, "Philosophie der Technik," or translated into English, "Philosophy of Technology." However, it was not until the mid 20th century that the parameters of a Western philosophy of technology would emerge with three main camps: positivism, phenomenology, and pragmatism. Positivism relied on science as a source of truth using words and logic. Phenomenology, being grounded in experience, focused on the habituation of technology. Likewise, pragmatism also firmly planted in experience, concentrated on perceived problems and an inquiry approach. The explosion of interest in the 1970s and 1980s yielded a plethora of

dystopian technology views and a belated recognition that Dewey's pragmatic instrumentalism was a pioneer for the sub-discipline (Hickman, 2001, 2009; Ihde, 1993; Mitcham, 1994).

Coming of age in the latter half of the 19th century, Darwin's evolution theory deeply influenced Dewey. He rejected the classical philosophers' ideas about knowing and the known—the separation of mind from some external reality—and instead, embraced a humanistic perspective with origins in the Enlightenment. In Dewey's system of ideas, individual organisms grew and adapted in natural contexts, specifically in the milieu of social relationships. When an individual came in contact with others, she tried to make sense of her experience within this community, while others are likewise doing the same. Meaning only existed in the context of communication, and interaction always resulted in individual change. On a societal level, this coming together had an aim of addressing the problems and challenges of communal living. Dewey recognized that the best and ideal political system for fostering these interactions was democracy, where citizens participated in solving communal problems in a give-and-take fashion. To act morally meant to interact with others in a mutually-respectful way, and further, to insist that all individuals participate socially and are allowed to develop their own distinct capacities for growth. For Dewey, the purpose of education was to facilitate this growth through adaptation. Further, education had no end point, except for more personal growth, which he characterized as "continual reorganizing, reconstructing, transforming" (Dewey, 2007, p. 42).

Technological Thinking

The foundation of Deweyan epistemology is the idea that individuals interact with others and the natural environment in a perpetual sequence of transactions with an aim for personal growth. Further, in a school setting, a major student aim is to solve problems using intelligence, meaning the phases of observation and judgment resulting in growth with an end-in-view. Throughout most of his career, Dewey described this process as "pragmatic instrumentalism." However, late in life he expressed regret because the term provoked confusion, and instead, declared a preference for the term, "technology" (Hickman, 2001).

In general, technology, disciplined inquiry, or pragmatic instrumentalism embodies four meanings. First, it can refer to the *rational* process of developing *means* such as instrumentation, artifacts, and purposes with an *end* in sight. Second, it can refer to a *collection of means* including entire systems, methods, procedures, and instruments. Third, technology can mean the *knowledge* or *application* of scientific theories including the ability to discover new theories. And in its most etymologically correct and robust

sense, fourth, it refers to the systematic inquiry into such things. To put it another way, technology "involves the *invention, development,* and *cognitive deployment of tools and other artifacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolution of perceived problems*" (Hickman, 2001, p. 12). Therefore, the social studies as a curriculum *and* method functions as a technology or way of intelligent thinking, and the DTAs embody the potential to serve as powerful instruments for enhancing both technology (i.e., the social studies) and intelligence (i.e., growth or adjustment).

The Social Studies Curriculum, Pedagogy, and Growth of the Learner

In schools, promoting individual growth involves the *purposeful* integration of the curriculum, the pedagogical choices of the teacher, and the interests and experiences of the learner. Teachers are entrusted to make wise choices in promulgating the curriculum, and then providing "continuous" activities bearing in mind the connections between "the subject matter…and the wider and more direct experiences of everyday life" (Dewey, 2007, p. 123). It would be a mistake to interpret the role of activities as the oft-repeated phrase, "Learning by doing," because in Deweyan philosophy, activities refer to the unitary and interrelated nature of curriculum and method as well as theory and practice embedded within the phases of inquiry. Within this framework, the social studies curriculum carries a useful purpose in the growth process.

The school curriculum is an inherited collection of subject matter that education specialists consider helpful in promoting the growth of learners. The subject matter should be a logical collection of principles and concepts based on a set of social aims and goals. As Thornton (2005) rightfully points out, "Flexibility and balance seem most likely to be secured if goals and subject matter are entities in a fixed relationship…there seems no good reason why these ties shouldn't be fluid and responsive to shifting purposes" (p. 66). In this sense, the curriculum is both subject matter and method. In the case of the social studies, the subject matter can become transformed into a vital part of the technology paradigm.

Per Dewey, social studies teachers should assist students in drawing on previous school lessons with the purpose for understanding the current material (Dewey, 1938, 2001, 2007). Moreover, the understanding of new material should also help clarify or bolster what was previously learned. In *Democracy and Education*, Dewey (1916/2007) argued that subject matter can only truly be connected to the learner when the teacher considers and leverages multiple interconnections to everyday life. Even more importantly, the interconnections must be developed within the interests of the individual students.

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When the curriculum is firmly anchored in student interest, subject matter becomes method. To put it another way, "[T]he essentials of method are therefore identical with the essentials of reflection" (Dewey, 2007, p. 124). This does not mean that the teacher identifies students' interests, and then uses them as a vehicle to pursue teacher aims. Rather, the interests are important in a uniquely singular way, and when the teacher discovers those interests, she can harness and lead the students to disciplined inquiry within the subject matter (Pring, 2007).

Dewey described this as a five-part process. First, the teacher expertly arranged continuous activities—or genuine experiences—based on the learners' interests. Second, the activities helped generate a problem requiring the use of intelligence. Third, the student engaged in inquiry to address the problem. Fourth, the student developed a systematic response to the problem. And lastly, the learner tested the ideas against other experiences. What he described was not merely a mental activity because true meaning only occurred in a social sense. The social environment provided the sources of problems, and communication with others provided meaning (Dewey, 1910).

Importance of the Social Studies

Within Dewey's system of ideas, the social studies are important because they provide the *material* for problems with an aim for improving community life and current social conditions. As a *method*, the social studies are a vital part of the technological way of thinking. As individuals grow, they test ideas against new experiences. All "natural events" (Dewey, 1929a, p. 159) or disciplined inquiries or technological ways of thinking potentially spark infinite connections between activities and experiences, which are only limited by the individual's imagination. What makes the social studies a method is the supposition that technological thinking is dependent on "the context of perceived connection in which it is placed" (Dewey, 2007, p. 156). In other words, *context* profoundly influences the instrumentalities, the stock parts and raw materials leading to further growth. On an education level, Dewey identified history and geography as the subjects that provided the context between nature and man, giving rise to the method of context in the technological thinking paradigm.

Geography and history are both collections of principles, concepts, and lists of facts as well as instrumentalities or methods "to perceive the spatial, the natural, connections of an ordinary act" in the case of geography; and "to recognize its human connections" through the study of history (Dewey, 2007, pp. 157-158). Although Dewey primarily expounded on history and geography, similar cases can be made for the other social sciences, which can be integrated in myriad ways. In fact, the National

Council for the Social Studies identified 10 thematic strands where subject matter becomes method (National Council for the Social Studies, 2010). While Dewey was not directly involved with the origins of the social studies as a formalized curriculum, evidence suggests that his ideas and philosophy influenced and shaped the deliberations (Fallace, 2009).

Tools and Machines

As noted earlier, when engaging in technological inquiry, individuals construct, develop, and implement cognitive tools and artifacts, and then apply them on others types of things to address a perceived problem. All tools, including artifacts, have a connection to nature or a technological way of thinking, or put another way, to the instrumentalities. Dewey (1929a) cautioned us that tools are not a physical extension of human beings, but instead acted "toward other external things, as the hammer to the nail, and the plow to the soil" (p. 123). When humans perceived and acknowledged these relationships between things, or as he called them, "the sequential bonds of nature" (p. 123), they became part of the "Being in process of becoming" (p. 123). Therefore, by definition tools as objects only act upon other objects, and only through their use and intellectual deployment does one make meaning.

With DTAs, the sequential bonds of nature are obscured, and must be revealed to learners. When an individual applies a pen to paper much like a plow to the soil, the potentiality of the act or perception is the forming of words and written language. The experience is quite different when a student engages a computer through a keyboard—a type of machine—to interact with software to produce words on a monitor. Dewey recognized this difference and offered the following prescription,

The great advance of electrical science in the last generation was closely associated, as effect and as cause, with application of electric agencies to means of communication, transportation, lighting of cities and houses, and more economical production of goods. These are social ends, moreover, and if they are too closely associated with notions of private profit, it is not because of anything in them, but because they have been deflected to private uses:--a fact which puts upon the school the responsibility of restoring their connection, in the mind of the coming generation, with public scientific and social interests. (Dewey, 2007, pp. 151-152)

In other words, the social studies as curriculum and method supply the means for *revealing* or *bringing closer* the natural bonds of tools and machines across all content areas and learning. According to Dewey, the way to accomplish this is for students to study "active occupations" both for scientific purposes (i.e., methods) and social pursuits (i.e., formulation of

aims) for younger students, and the opportunity to focus less on the formalized curriculum as a body of things to know for older students and more like they encounter it in "the daily life of the social groups in which the student shares" (p. 152).

Dewey (1916/2007) tells us that using active occupations to transcend the obscurity of modern tools and machines does not necessarily mean that student learning experiences must contain a "recapitulation of the history of the race" (p. 152), but developing the context for learning necessarily draws on things from the social studies. For example, an elementary teacher may have developed a lesson for teaching addition and subtraction of numbers in the hundreds. While learning social studies, the students may have learned about early traders in Mesopotamia developing accounting systems using mathematics. While probing student interests the teacher also realizes connections to students' lives with weekly allowances or earning money by performing chores. Students may recall a prior lesson from the day before, a trip to a grocery store, or saving money to buy a cherished gift. These actions, thoughts and movements, *reveal* the sequential bonds with nature and lead to the conditions for establishing a perceived problem and a method for inquiry. They help nurture the infinite connections students can make while engaging in technological thinking. Students may consider how early people developed accounting systems in daily living, may conjure an image of a stone tablet with writing notations, peruse a worksheet she completed the day before adding and subtracting smaller numbers, all with a view for making meaning of the immediate experience with larger numbers. These are active social occupations! Studies of the past help illuminate current conditions and make meaning of the individual in the immediate. The student carefully adds and subtracts series of numbers using a pencil and paper, testing the experience against all those experiences. Occasionally, she realizes an error, drawing on something she learned the day before, erases it, and proceeds with a different approach. With the completion of each problem, a feeling of satisfaction washes over her. Now contrast this with another scenario using a machine.

Imagine the teacher had instructed each student how to complete the problems using a calculator. Now, rather than drawing on the historical experiences of social occupations, the student is mainly recalling the instructions from yesterday for pressing the digits on the keypad, and presto, an answer is revealed. Or as Dewey explained,

In every machine the primary state of material has been modified by subordinating it to use for a purpose. Not the stuff in its original form but in its adaption to an end is important. No one would have a knowledge of a machine who could enumerate all the materials entering its structure, but

only he who knew their uses and could tell why they are employed as they are. (Dewey, 2007, p. 166)

It is still possible for a skilled teacher to leverage social occupations using a calculator, but Dewey teaches us that first-hand experience—working with primitive and raw materials whenever possible—is much more valuable than other approaches like using machines or a calculator. In other words, until the student develops experiences with an object's sequential bonds of nature, she or he will not be able to form the interconnections to daily life, and fully experience growth.

A Pragmatic Approach

Although social constructivism has been a useful tool for describing learning as a building up process in a student-centered classroom, when applied to learning and teaching in the social studies using DTAs, we have seemed to reach a dead end. The solution invariably ends with a call for more and better DTAs, teacher training, support services, attitude/disposition adjustments, and the like. Moreover, compared to ten years ago, the conversation has shifted to an emphasis on the affordances of technology, which completely ignores human learning (Derry, 2007; Milson & Alibrandi, 2008; Saye & Brush, 2009). Deweyan pragmatism offers us a way to *naturalize* DTAs within human experience, specifically by focusing on the unique subject matter of the social studies, the centrality of student interest, and the instrumentalities of intelligent thinking resulting in the following seven guidelines:

(1) DTAs should *only* be utilized when there are clear connections to social studies aims, course goals, and lesson objectives. By focusing on the problems with technology integration or the affordances of technology, we lose sight of the interconnections among aims, goals, and objectives. In fact, we tacitly accept the integration of technology as positive, when we should really be discussing whether it is necessary or desired for supporting those interconnections. For example, one aim of the social studies is to promote the development of multiple perspectives. In a global history classroom, a course goal may be to develop cultural literacy (Hanvey, 1976). As a lesson objective, perhaps a teacher would set up a dialogue using Epals between her students and students in Israel and the Gaza strip in order to develop diverse perspectives related to peace, land, and freedom.

(2) Working with raw materials and first-hand experiences are valued over mediated experiences, particularly with young children. Dewey not only advocated for manual experiences especially for younger learners, but he also supported scientific research as a source of expertise. Social studies teachers should follow and heed the latest brain research. When promoting writing for example, recent studies suggest that cursive

writing is important for brain development and thinking (Bounds, 2010, October 5; Brewer, Damico, & Rinkevich, 2012). Certainly, the emphasis should be on young children "doing history" (Levstik & Barton, 2011).

(3) When engaging students with DTAs, they should already know and be proficient with the manual processes underlying electronic shortcuts. The social studies as a method requires a multitude of skills related to mapping, reading, writing, graphing, and many others. Before using DTAs, teachers should ascertain student proficiencies in these skills because students will never be able to comprehend the natural connections and extend learning with technology. For instance, a learner should be skilled with a compass before using geographic information systems (GIS).

(4) It is not enough to justify the use of DTAs because they are used authentically in the larger society, there must also be a clear connection established with student interest. As stated earlier, we should not assume that students always want to use technology to learn because it is authentic. Individual interests vary within different learning contexts. That interest may need to be cultivated when there is a clear reason for using the technology. Moreover, it may make sense to offer certain students non-DTAs ways to meet the same learning objectives.

(5) DTAs embody the most potential for enhancing student learning when schools provide them with maximum of freedom and use approaching the authentic ideal. One major problem is the artificial way DTAs are integrated in most schools. Even when schools purchase new computers and equipment, the internet is often slow and limited by filters. On an intelligent thinking level, learner experiences are interrupted resulting in discontinuous action, the perceived problem is no longer an aim of the social studies curriculum, but rather directed at the machine or artifact. Moreover, if meaning is made in discourse—and students utilize DTAs for communication—the slow network or old equipment limits the potential. And lastly, what and how students use DTAs outside of school is vastly different than inside, which certainly diminishes all students' interests.

(6) The student-teacher partnership is essential for identifying student interests, providing educative experiences, and avoiding mis-educative experiences when using DTAs. One of the major tenets of Deweyan thought is the importance of student interests and the teacher's role in developing and nurturing those interests. Another role is to provide educative experiences, and guide students away from mis-educative experiences. One of the suggested ways for integrating DTAs into the social studies is through educational gaming software. Children may enjoy playing the games, but critics suggest they are not engaging in critical thinking skills and other desirable behaviors because they are either focusing on the play or reward aspects. In fact, some evidence suggests that many students may

outwit the gaming technology in pursuit of these mis-educative experiences, and when benefits do occur, it enhances learning primarily for already successful students (Ito, 2006; Okan, 2003).

(7) DTAs should be situated in the praxis of social studies as a content and method for promoting intelligent action. Social studies researchers and educators should place DTAs in a larger context with thicker descriptions. One possibility is authentic intellectual work (AIW) or educational activities, which demand intellectual rigor through the construction of knowledge, disciplined inquiry, and elaborated communication, and have value beyond school (Newmann, Bryk, & Nagaoka, 2001; Smith, Lee, & Newmann, 2001). This promising line of research suggests direct connections with Deweyan thought. Additionally, these larger snapshots tend to be interdisciplinary, which naturalizes various formalized curriculums as methods.

Conclusion

Dewey has often been criticized erroneously for his child-centered approach to learning (Darling, 1994; Pring, 2007). Contrary to some assertions, he did not espouse a position that curriculum follow the interests of the child. Instead, the development of interest was a consequence of educative experiences. Nor did he reject the past and traditional forms of knowledge. Rather, he recognized the expertise of the teacher in facilitating the continuity of experiences for growth and by fostering the desire for further growth. Dewey respected the canons of knowledge, which grew exponentially during the Enlightenment period, and understood the importance of learning about the past through the curriculum. It was in the teacher's best judgment to begin with first-hand experiences and employ other methods and ways reflective of the way people work and play in the pursuit of social occupations. Clearly, in the 21st century, most social occupations involve some form of computer technologies, which holds great potential for DTAs and the social studies.

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