

21st Century Learning and Progressive Education: An Intersection

Tom Little*

Park Day School

Abstract

The seminal tenets of progressive education bear a striking resemblance to the newly fashionable principles associated with a new movement known as “21st Century Education. This article traces the development of progressive education principles, starting with the founding of the Progressive Education Association, and shows their close proximity to 21st century educational attributes and goals. It demonstrates how the principles underpinning progressive education emerge over and over again as operative and successful educational practice, and how 21st century reformers may benefit from turning attention to other principles of progressive education to fully prepare students for the future.

Keywords: tenets of progressive education; 21st Century learning; education trends

* Tom Little was a founding teacher at Park Day School in 1976, where he has been the Head of School since 1986. He received his Masters Degree in Educational Leadership at the Klingenstein Leadership Academy at Teachers College, Columbia University. He is the current Board President of the *Progressive Education Network*.

21st Century Learning and Progressive Education: An Intersection

In 1919, at an organizational meeting in Washington, D.C., the Board of Trustees of the newly created Progressive Education Association (PEA) adopted its founding tenets (See fig 1). For three decades, these principles and the progressive education movement would fundamentally alter the course of American education. And then in the 1950's a conservative swing of politics rendered the movement out of favor with the American education establishment.

Fig. 1 - Progressive Education Association (1919)

Founding Principles

- Freedom to develop naturally.
- Interest the motive of all work
- The teacher as a guide, not a task-master
- Scientific study of pupil development
- Greater attention to all that affects the child's physical development
- Cooperation between school and home to meet the needs of child-life
- The progressive school as a leader in educational movements

In his definitive history of progressive education, Lawrence Cremin of Teachers College, Columbia, eulogizes the passing of the movement and chronicles the factors that contributed to its demise (Cremin, 1961). Among the reasons, Cremin cites strife and fragmentation among its leaders; inherent negativism toward social reform movements; the burden of progressive practices on teachers; a swing toward conservatism in post-war political and social thought; and, a failure to keep pace with the transformation of American society (Ibid, pp. 347-352).

In the late 1950's and throughout the second half of the 20th century, education trended toward a more traditional approach focused on the transmission of knowledge and development of academic skills. The teaching model returned to one featuring direct instruction, with student assessment primarily based on normative standards. This trend continued into the modern era and was promulgated in American education through the passage of a federal school reform policy guided by conservatism—the Elementary and Secondary Education Act of 2001 (ESEA), known as *No Child Left Behind (NCLB)*. (See U.S. Department of Education, 2001). NCLB supports the premise that setting high standards and establishing measurable goals can improve student success and achievement. The Act requires states to construct assessments in basic skills, and administer these assessments to all students at select grade levels in order to receive federal school funding.

As perceived failures with NCLB emerged through the first decade of the 21st century (Hursh, 2007), educators realized that a narrow focus on standardized testing was not significantly increasing graduation rates or preparing students for the challenges that lie ahead after graduation. These weak outcomes, alongside the notion that America is losing its position as a capital as a world economic and intellectual leader, has motivated reformers to discover the skills and resources required for a complex and rapidly changing society

(Wagner, 2008), (Trilling & Fadel, 2009). The resultant new movement, referred to alternately as 21st Century Education or 21st Century Learning, has captured elementary and secondary school leaders throughout the country (EdLeader21/Kay, 2012).

Proponents of 21st Century Learning seek to address how American education can keep pace with the prolific advances in technology and the globalization of our society (2009, Trilling and Fadel). They have sought to discover the proclivities and skills that are necessary in a globalized era (Wagner, 2008), drawing from interviews with and reflections from the captains of the technology industry and the international business world. The notion that America is losing capital as a world economic and intellectual leader has motivated educators to construct the new 21st century educational model.

There is a growing consensus around a framework (see Fig. 2) of 21st Century skills (Ravitz, et. al, 2012):

...models of teaching and learning that are project-based, collaborative, foster knowledge building, require self-regulation and assessment, and are both personalized (allowing for student choice and relevance to the individual student) and individualized (allowing students to work at their own pace and according to their particular learning needs). Each of these elements has a strong base of prior research linking it to positive outcomes for students in terms of development of 21st-century skills (Shear, et al., 2010, p. 3).

Fig. 2- 21st Century Skills

- Critical Thinking
- Collaboration
- Communication
- Creativity and Innovation
- Self-Direction and Independence
- Global Connections
- Using Technology as a learning tool

In contrast to the knowledge-based curriculum of the previous generation, the resulting focus on communication, collaboration, communication, creativity and innovation has required a deep reflection on teaching practices. To implement reform, districts need to identify the teaching strategies that will provide the best foundation for students as they enter a changing work force. They are discovering that fostering these skills requires a wholesale overhaul of conventional American educational pedagogy.

And yet, the seminal principles and practices of progressive education bear a striking resemblance to the newly fashionable principles associated with “21st Century Education”. Progressive Educators might wonder if the foundation of their movement has been co-opted by the modern day educational establishment. Dressed in a new suit, these ideas have been around for over a century.

In a lecture to students at Columbia University in the 1940’s, John Dewey’s words resonate loudly today: “The world is moving at a tremendous rate – no one knows where. We

must prepare our children not for the world of the past – not for our world – but, for their world – the world of the future.” (Kandel, 1941)

Though Lawrence Cremin justifiably sounded the death knell of the Progressive Education Association (PEA) in the 1950’s, a feint pulse has been beating throughout the twentieth century and many progressive schools survived and flourish into the 21st Century. The progressive movement enjoyed resurgence in the late 1960’s and ‘70’s with the advent of the Open Education Movement (1970, Silverman). In 1986, the Network of Progressive Educators, the successor to PEA, at its annual conference in Weston, Massachusetts, published an updated version of the founding principles (see figure 3).

Fig. 3 - The Network of Progressive Educators (1987)

Principles of Progressive Education

- Curriculum Tailored to Individual Learning Styles, Developmental Needs, and Intellectual Interests
- The Student as an Active Partner in Learning
- Arts, Sciences, and Humanities Equally Valued in an Interdisciplinary Curriculum
- Learning Through Direct Experience and Primary Material
- A Focus on Multi-Cultural and Global Perspectives
- The School as a Model of Democracy
- The School as a Humane Environment
- Commitment to the Community Beyond School
- Commitment to a Healthy Body through Sports and Outdoor Play

What lineage, if any, can be drawn between the fundamental and historical practices and tenets of progressive education and the 21st Century Educational framework? This article highlights the reemergence of progressive theories in modern day educational practice and the strands of progressive education that have over time played a major influence on American education.

Project Based Learning

21st Century Education features a teaching pedagogy known as Project Based Learning (PBL). Efficacy research indicates students whose teachers implemented PBL as a teaching strategy gained significantly in the overall development of 21st Century skills (Ravitz, 2012). PBL seeks to stimulate student interest and engagement by immersing students in complex and challenging problems and tasks that resemble the circumstances of real life. The methodology uses inquiry surrounding real world problems to help students master content knowledge, and contributes to the development of communication, collaboration, critical thinking, and creativity. (Thomas, 2000).

The historical roots of PBL can be found in the work of William Heard Kilpatrick of Teachers College, Columbia, who in 1918 wrote *The Project Method*, the seminal treatise on what came to be known as project based learning. Kilpatrick was one of the progenitors of progressive education and sat, along with John Dewey, on the faculty of Columbia Teachers College, where he was introduced to the concept of project learning by Dewey. He defined the project method as a purposeful act and encouraged its integration into teaching practice as “the typical unit of instruction.” Kilpatrick drew heavily from the work of Edward Thorndike, the progenitor of the educational psychology movement, whose early studies researched human motivation and learning (Thorndike, 1903). According to Kilpatrick, done well, the project method corresponds to the ‘interest span,’ of students, or “the length of time during which a set will remain active; the time within which a child will – if allowed – work at any given project.” (Kilpatrick, 1918. p. 15). For Kilpatrick, stimulating student interest was key to effective teaching (Beyer, 1997).

An early practitioner of the project approach was Carleton Washburne, who served as the superintendent of Winnetka Public Schools from 1919 – 1943. Washburne, a protégé of Frederic Burke, systematically reconstructed the educational philosophy and practice of the district into what became known as the Winnetka Educational System (Washburne & Marland, 1963). A champion of progressive education through the early decades of the 20th Century, Washburne describes the project approach by illustrating various activity-based curricular experiences where children were immersed in real world endeavors. First graders learning about the postal system by creating a school post office; fourth graders learning the fundamentals of astronomy by viewing the night sky through a telescope and constructing a solar system to scale in the school gymnasium; sixth graders learning about the Middle Ages through dramatic productions. These projects were sustaining activities for district students for many decades and continue today as Winnetka is one of the few public school districts implementing progressive teaching practices (Washburne 1952).

On a wide scale, PBL emerged as a staple of teaching practice as the Open Education Movement arose in the late 1960’s. Practitioners of the “open classroom” approach utilized projects to encourage student conceptual development. In the open classroom, students experience less overt structure and have freedom of movement and choice of activity. Lessons are organized around small groups and the teacher acts as guide and facilitator as the need among students arises. Within this format, teachers and students engage in projects that can expand the learning beyond the acquisition of information to a direct, hands-on relationship with the subject (Silberman, 1973, pp. 36-42).

The historical antecedents of PBL have been evident throughout the 20th Century, and are a primary pedagogical feature in progressive education. The latest 21st Century incarnation of PBL emphasizes the deep understanding of concepts and the importance of purposeful activity. The lineage to the work and discoveries of William Heard Kilpatrick is direct and enduring.

Critical Thinking

The emphasis of 21st Century Learning on critical thinking has ancient roots that trace back to the time of Socrates who patterned a strategy for probing philosophical questions and justifying answers and solutions (Paul, Elder and Bartell, 1997). Indeed, the inclination to ponder deeply may well be viewed as a human instinct and education throughout time has drawn upon the imaginative resources of humans to think and resolve problems.

Practitioners of 21st Century Education consider critical thinking and problem solving essential to learning. Students should become facile “reasoners,” able to apply inductive or deductive thinking as appropriate to a given challenge; they

should be able to make sound judgments and decisions and solve problems by asking questions and bringing innovative thought to situations (Trilling & Fadel, 2009, pp. 50-54).

The theories of John Dewey have been imprinted on this aspect of educational thought. He suggested that learning must involve reflective thought, which he defined as “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conditions to which it tends” (Boris and Hall, 2005).

Indeed, as progressive education emerged in the early 1900’s, critical thinking was paramount in the work of most practitioners. In his 1916 essay on education, Abraham Flexner, the founder of the Lincoln School in New York wrote: “In education, as in other realms, the inquiring spirit will be the productive spirit” (Flexner, 1916). Flexner and other progressives believed that education should confront and grapple with the broad social issues of the day, engaging students in solving problems, which emerge from a child’s real experience, and not simply from abstract, hypothetical situations. Similarly, the “Dalton Plan,” fashioned by founder Helen Parkhurst in 1919, student assignments were designed to “...stimulate reflection, inquiry and an authentic encounter with human questions...” (Semel, 1987)

Cooperative Learning

A fundamental of 21st Century Education is the clarion call to encourage collaboration among students. In the educational setting, this skill is best realized through the practice of cooperative learning, defined as students working together to accomplish shared goals (Johnson & Johnson, 1989). Effective use of this practice emphasizes students working collectively in small groups to achieve academic objectives. Students tap into the skills and resources of one another, while the teacher functions as a facilitator (Slavin, 1990). The methodology features the reliance on equal participation among students to achieve its ultimate learning objectives (Chiu, 2000). Cooperative learning yields positive results in content mastery, communication skills, team building, classroom climate, and social development (Kagan, 1989). Punctuating this point, Jonathan Martin (Martin, 2010) argues that a critical role of the learning institution is to provide unparalleled opportunity for this cooperative learning:

Increasingly, education’s value-add is and will be in the coaching and troubleshooting when students are applying their learning, and in challenging students to apply their thinking to hands-on learning by doing and teaming: so let’s have them do these things in class, not sit and listen. We know that collaboration is a critical skill set which can’t be developed easily either on-line or at home alone– let’s have students learn it with us in our classrooms. Let every classroom be a collaborative problem-solving laboratory or studio.

Applying cooperation to 21st Century skills becomes important as technology allows for collaboration across vast distances and the professional environment in many occupations calls for a high level of group functioning. Not only is it necessary for students to understand the basics of cooperating with others, they must adjust to cultural differences. Students must demonstrate that they can work effectively in a diverse setting and be flexible in working toward a common goal (Trilling & Fadel, 2009).

Cooperative learning can be traced to the progressive education movement in the Winnetka, Illinois Schools. Carleton Washburn wrote:

...the progressive school tries to help children and youth to learn to adjust to each other and the world around them. It tries to give them training in co-operative thinking and working. It tries to guide their self-expression into channels that will not stand in the way of the purposes of the group or the larger society, but that will contribute a share toward them. (Washburne, 1952, p. 22)

Children worked in groups to design projects and each student had a particular role to play in order for the activity to be successful. Students shared their experience and knowledge, and assisted one another in completing the project.

Indeed, John Dewey was a proponent of students collaborating as it reflected more closely the exercise necessary for understanding democracy. He encouraged schools to be equipped “with the instrumentalities of cooperative and joint activity” (Dewey, 1922), in contrast to the sole reliance on lectures. Cooperative learning became part of the DNA of progressive education.

There arose in the early days of the progressive education movement, schools relying heavily on the notion of applied learning to build collaboration among students. At the City and Country School, Caroline Pratt constructed meaningful jobs for students that would serve the larger school community. She held the view that students in the school were interdependent and must share equally in the responsibilities and decisions within the institution. Students created a post office, a manuscript printing service, a school store, and served as waiters and cleaners in the school lunch room (Hendry, 2008). These jobs built in students a degree of independence, while allowing them to work with their classmates on practical, everyday tasks that served the entire school community.

Individualizing Instruction

A major strand of 21st Century Educational pedagogy is the notion that students can learn at their own pace and, as learners, should be encouraged to develop independence and autonomy. More teachers are finding ways to organize curriculum and manage programs in order to provide one-on-one instruction. They recognize that students learn and develop at varying rates. New technologies support this effort as on-line instruction-based curricula is being developed to assist teachers inclined to eschew direct instruction in lieu of online content delivery (Martin, 2010).

Clearly, individualizing instruction has been around for centuries. However, one of the earliest reflections of formalizing individualized instruction on a large scale in American schools occurred in 1912 at the San Francisco Normal School, where teachers were being trained under the leadership of Frederic Burk. For its day, an innovative component of teacher training was to place student teachers in real classrooms. One of Burk’s supervising instructors noticed that the students were functioning on varying levels in their understanding of mathematical concepts. She devised a system of creating separate exercises for individual students, to accommodate their particular learning needs (Washburne & Marland, 1963). This system of individualization became popular among progressive educators, as the desire increased to learn more about individual students and their interests (Dewey, 1913).

The inclination to study and understand the needs of individual students arose during the early progressive movement. In the 1890s, Dewey expected his teachers to reflect and write their observations about the children at the Laboratory School at the University of Chicago. Other schools followed suit. A voluminous trail of student work, teacher and administrative records, and journals from the Lab school is preserved in the library at Columbia Teachers College (Cremin, 1961). The archive underscores the devotion to serving

individual students. Resonant with the goals of 21st Century Learning, when the students had graduated from Dewey's lab school they had:

...amassed a wide range of knowledge; they had developed a multitude of skills and sensitivities, manual and social as well as intellectual. They had learned to work both cooperatively and independently and could express themselves clearly and concisely. They had on countless occasions put new found knowledge to the test, and they had made a clear beginning in all of the major fields of knowledge (Cremin, 1961, p. 140).

This approach became manifest in many progressive schools that opened in the period between 1910 and 1920. Lucy Sprague Mitchell and Harriet Johnson (Bureau of Educational Systems, later to become Bank Street College), and Caroline Pratt (City and Country School) were early practitioners of the notion that schools could vary from a prescribed curriculum to achieve educational goals. These progressive educators held the imperative that teachers must understand children individually in order to meet their learning needs. These educators were adapting curriculum and changing the classroom practices according to what they believed was best for the children under their care (Burghardt, Davis, Bashforth, 2012).

Self-Direction and Independence

The traditional structure of American classroom teaching practice has featured lecture and direct instruction. A classroom structure of pupils facing the front of the classroom where the teacher conducts class is de rigeur in most schools at the elementary and secondary level. In contrast, the emerging aspiration to promote in students a high degree of independence and self-directed learning is an underlying principle for 21st Century Education causing educators to re-think classroom pedagogy. The approach empowers students to take responsibility for their own learning and build the motivational foundation to drive learning (Abdullah, 2012). As new technologies afford teachers the opportunity to move further and further away from lectures and whole group instruction, self-directed learning becomes a baseline requirement for success in the classroom. The use of innovative technologies such as podcasts, video-clips, online instruction, and live online discussions is changing the shape of American classrooms and requires a reasonably high level of self-direction for students to achieve success. These changes in pedagogy and use of technology represent a major sea change in teaching practice, now evidenced on an international level (ICT Cluster, 2010).

Lawrence Cremin recounts the publication in 1892 of a series of articles written by Joseph Meyer Rice in *The Forum*, a monthly published in New York. Rice traversed America, visiting hundreds of schools and classrooms and his report represented an excoriation of the American educational system of the day. In one telling account, Rice observed in a New York school that students were forbidden to move their heads. He quoted the principal: "Why should they look behind when the teacher is in front of them." Though certainly an extreme example, this anecdote characterized what Cremin cleverly alludes to as "Dr. Johnson's injunction to the 'fatal dullness of education'" (Cremin, 1961, p. 3-4). By the late 1880's, the enormous challenge of providing an education to all Americans resulted in the standardization of instructional strategy. Teachers ruled with iron hands.

The eighteenth century philosopher Johann Heinrich Pestalozzi had argued that children should be freed to pursue their interests. Powers of intuition, observation and judgment should be cultivated by releasing students from the grasp of their teachers. (Kilpatrick, 1951; Silber, 1965). Pestalozzi is often cited as a major historical figure contributing to the progressives' inclination to shift the emphasis to a more child-centered approach to education. Dewey was explicit in his support of this philosophy: "The

educational center of gravity has been too long in the teacher, the textbook, anywhere and everywhere except in the immediate instincts and activities of the child himself” (Dewey, 1900). Dewey advocated an activity-oriented approach to teaching, where children could work independently and learn through direct experience. His inclination to understand and inspire the interests of the child was fostered more in a classroom encouraging children to be self-directed.

Helen Parkhurst, who founded the Dalton School in 1919 (originally called The Children’s University School) held similar views. She synthesized the ideas of Washburne and Dewey into what became known as “The Dalton Plan,” a system which allowed students to work at their own pace, allowing them “to pursue and organize their studies their own way.” Parkhurst intended to foster in students an understanding of the responsibilities of living in a democracy. She had the students working collaboratively in interactive activities, encouraging the development of independence and social awareness (Semel and Sandovnik, 1999).

Global Competency and Awareness

An essential component of 21st Century Learning is for students to develop a high level of global competency and awareness about the world in which they live. To be globally competent is to possess the dispositions necessary to have productive and respectful relationships with people from diverse geographical locations. Further, it is the awareness of global issues and an interest in solving problems on a global scale (Reimers, 2009).

Tony Wagner depicts the need to develop “collaboration across networks” a necessary survival skill for individuals entering the global work force. According to Wagner: “The skillfulness of individuals working with networks of people across boundaries and from different cultures has become an essential prerequisite for a growing number of multinational corporations” (Wagner, 2008).

The increased availability of professional development opportunities for teachers to learn strategies for fostering global awareness has encouraged more schools to emphasize global awareness as a curricular objective. The occasion for students traveling abroad at the secondary and postsecondary level has become readily available (Martin, P. 2009), while new technologies such as Skype allow students to pursue on-line relationships with students from other countries.

The Progressive Education Association pursued an active interest in the international progressive education movement, however there is little evidence that the early progressive schools turned significant attention to matters of global awareness. The tendency among many immigrant cultures to assimilate into American culture was a discouraging factor to any global awareness being reflected widely in schools. Other than foreign language instruction and study of geography, there was little emphasis in this area.

Attention to global matters seemed to emerge in the 1960’s as international studies became more prominent in American colleges and universities. Students were graduating from college with a heightened interest in global affairs, while the politics of the day focused more attention on international relationships. Though this development brought more attention to global awareness in the classroom, there is no direct link to the progressive school movement as schools of many different philosophical colors came to embrace these programs.

Using Technology as a Learning Tool

The ubiquity of technology in the 21st century requires that students develop a wide range of technological skills. Media, library, communication and technology literacy are primary to 21st Century Education (EdLeader21/Kay, K. 2012). Educational models are springing up, putting a new face to the elementary and secondary school classroom. The respective role of teachers and students is changing, as teachers become guide and facilitators, while students often direct their own learning. At the New Tech School of Napa (California), students:

learn in an innovative and professional environment fostered by the use of advanced learning methods and technology. Both staff and students understand the commitment necessary to implement a rigorous and relevant curriculum, one in which technology, standards, and skill development are embedded (from the school website).

The utilization of technology in schools can allow for problem-solving and design-oriented learning projects, which support student initiative and discovery. Technology, for example can be used for advancing the goals of a school's global education program by tapping into the potential of connectivity resources; students have easier access to a range of scientific research and can engage in real-world projects that address various problems emerging in the medical or other scientific fields of study (Trilling and Fadel, 2009, pp. 152-155).

Obviously, technological advances that have taken place since the dawning of the progressive education movement have been exponential and comparisons would be specious, at best. However, the parallels that can be made between 21st Century education and the early days of progressive movement are best found in the approach to science, industry, and innovation embedded in the educational philosophy of the day.

Because of its impartial nature, Dewey viewed the role of science as paramount for a democratic society (Makedon, 1991). Because he believed in bringing scientific inquiry to the nature of the individual and the social nature of the human environment, Dewey viewed children as inherently active, with the impulse to explore, construct, and create (Butts, Cremin, 1953). His "activities" approach to school curriculum led to a wider implementation of active science discovery in progressive schools.

In the first decade of the twentieth century, under the Gary Indiana Superintendent William Wirt, the school district was transformed into an early exemplar of progressive education. Journalist Randolph Bourne wrote of the Gary school: "Those who follow Professor Dewey's philosophy, will find the Gary schools –as Professor Dewey does himself – the most complete and admirable application yet attempted, a synthesis of the best aspects of the progressive schools of tomorrow" (Cremin, 1963. P. 155).

In the Gary schools, science laboratories and a rich science curriculum became accessible to all students. A forward looking and innovative educator, Wirt's Gary Plan introduced a work-study-play plan, where students would rotate through activities in blocks, allowing access for all students to all features of the educational program. Wirt mobilized the entire campus (gymnasium, shops, laboratories, playground and auditorium). He promoted the teaching of the industry and technology of the day – manual arts, shops – students actually repaired and built things for the school. In Wirt's words, students would participate, "in a real industrial business in an environment similar to the old-time industrial home and community"(Volk, 2005). In Gary, teachers were preparing students for life in the industrial age.

The industrial arts constituted a major emphasis in education during the progressive education movement, as information and communication technology does so today. The inclination in its day to prepare students for the world of 1915 or 1920 was innovative, as education had been relatively static for over a half-century. As is the case today, reform educators were interested in addressing the needs of society and the rapidly changing industrial world. Progressive educators were at the forefront of this new educational model.

Conclusion

Principles and practices of progressive education have remained a constant influence throughout the past century. Time and again, effective teaching methodologies emerge which can trace their lineage to the progressive education movement. Though the “progressive” label has largely fallen out of current wide-scale use, a careful examination of 21st Century Educational practice reveals striking similarities. The early pioneers of the progressive movement influenced not only the American educational system of the first half of the 20th century, but their lineage continues to flourish into the rapidly changing world of the 21st Century and the age of technology and information.

No doubt, the principles of 21st Century Learning will bring great value to the educational system of the future. I would posit, however that there are elements missing from the current approach that are deeply embedded in the progressive education tradition that might prove critical to the ultimate success of 21st century reformers, and should be vetted thoroughly. These include social and emotional development, commitment to social justice, and the promotion of diversity and equity. As we turn our attention to those skills and attributes that will serve the needs of our society in a competitive global economy, we must also remember that the changing world requires that educators hold in trust the obligation to attend to the character and values of the youth in our care.

We can graduate students who are well versed in technology, able to think and solve problems, and understand how to work collaboratively. However, in such a rapidly changing and complex world, the equal need exists for our students to understand the virtues of justice, caring, and compassion. Our diverse society thrusts our youth into a world where cultural competency, moral integrity, and strong character have stakes as high as any other 21st Century skill. Today’s reformers may seriously consider turning to the work of progressive education for guidance on how to *fully* prepare our students.

References

- Beyer, L. (1997, September). William Heard Kilpatrick (1871–1965). *Prospects: The Quarterly Review of Comparative Education*. XXVII(3), pp. 470-85.
- Boris, G., Hall, T. (2005). Critical thinking and online learning: A practical inquiry. Perspectives in Higher Education (Presented at the 20th Century Conference on Distance Teaching and Learning. Retrieved at: http://www.uwex.edu/disted/conference/Resource_library/proceedings/04_1288.pdf
- Burghardt, A., Davis, S., & Bashforth, A. (2012). Lucy Sprague Mitchell 1878 -1967. *ECE 205*. Retrieved at: <http://ece205.wikispaces.com/Lucy+Sprague+Mitchell>
- Butts, R.F., & Cremin, L. (1953). *A history of education in American culture*. New York: Holt, Reinhart and Winston.
- Chiu, M. (2000). Group problem-solving processes: Social interactions and individual actions. *Journal for the Theory of Social Behaviour*. 30(2).

- Cremin, L. A. (1961). *The transformation of the school: Progressivism in American education, 1876-1957*. New York: Alfred A. Knopf.
- Dewey, J (1900). *The school in society*. University of Chicago Press, Chicago, Ill.
- Dewey, J. (1913). *Interest and effort in education*. New York: Houghton & Mifflin.
- Dewey, J. (1922). *Democracy and education*. New York: McMillan.
- EdLeader21/Kay, K. (2012) *The Professional Learning Community for 21st Century Education Leaders*. <http://www.edleader21.com/index.html>
- Flexner, A. (1916) "A Modern School," *American Review of Reviews* 53.
- Hendry, P. M.. (2008) "Learning From Caroline Pratt." *Journal of the American Association for the Advancement of Curriculum Studies. Volume 4. February 2008*. Retrieved from: <http://www2.uwstout.edu/content/jaaacs/vol4/Hendry.pdf> > 30 Nov. 2011.
- Hirsh, D. (2007). Exacerbating inequality: the failed promise of the No Child Left Behind Act. *Race Ethnicity and Education Vol. 10, No. 3, September 2007*, pp. 295–308
- Information and Communication Technologies (ICT) Cluster (2010) LEARNING, INNOVATION and ICT :Lessons learned by the ICT cluster Education & Training 2010 programme. (*This Report presents the outcomes of the ICT cluster commissioned by the European Commission*) Retrieved at: <http://www.kslll.net/documents/key%20lessons%20ict%20cluster%20final%20version.pdf>
- Intel Education Initiative, (2007). Designing Effective Projects: Characteristics of Projects Benefits of Project-Based Learning. Retrieved from: http://download.intel.com/education/Common/ro/Resources/DEP/projectdesign/DEP_pbl_research.pdf
- Johnson, D.W., & Johnson, R. (1989). *Cooperation and competition: Theory and research*. Edina MN. Interaction.
- Kagan, S. (1989, December). The structural approach to cooperative learning. *Educational Leadership: Journal of the Association of Supervision and Curriculum Development*.
- Kandel, I. L. (1941) Education and Modern Thought. Retrieved from Teachers College Record: <http://www.tcrecord.org/Content.asp?ContentId=15086> (Dewey Quote from a 1941 "March of Time" film).
- Kilpatrick, W. H. (1918). *The project method: The use of the purposeful act in the educative process*. New York: Teachers College Press.
- Kilpatrick, W. H. (1951) *The Education of Man – Aphorisms by Heinrich Pestalozzi*. The Philosophical Library, New York, N.Y.
- Martin, J. (2010, February 10). Reverse instruction: Dan Pink and Karl's "Fisch Flip". *Connected Principals*. Retrieved from: <http://connectedprincipals.com/archives/1534>.
- Martin, P. (2009). Study Abroad Programs: Elements of Effective International Student and Faculty Exchange Programs. *Analysis prepared for the California Research Bureau*.
- Network of Progressive Educators, 1987. Conference at The Cambridge School of Weston.
- New Tech High School of Napa (website: http://newtechhigh.org/?page_id=211)
- Paul, R., Elder, L., Bartell, T. (1997). A Brief History of the Idea of Critical Thinking. *From the California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations: State of California, California Commission on Teacher Credentialing*. Retrieved at: <http://www.criticalthinking.org/pages/a->

brief-history-of-the-idea-of-critical-thinking/408

- Ravitz, J., Hixson, N., English, M., & Mergendoller, J. (2012, April 16). *Using project based learning to teach 21st century skills: Findings from a statewide initiative*. Paper presented at the Annual Meeting of the American Educational Research Association. Vancouver, BC. Retrieved from: http://www.bie.org/research/study/PBL_21CS_WV
- Reimers, F. (2009, September). Leading for global competency. *Educational Leadership (the Journal of the Association for Supervision and Curriculum Development)*, 67(1).
- Semel, S. and Sadovnik, A. (1999). "Schools of Tomorrow," *Schools of Today: What Happened to Progressive Education*. Lang. New York, N.Y.
- Semel, S. (1987). *The Dalton School: The Transformation of a Progressive School*. Peter Lang, New York (American University Studies; Series VIV Education Vol. 34)
- Shear, L., Novais, G., Means, B., Gallagher, L., & Langworthy, M. (2010). ITL research design. Menlo Park, CA: SRI International. Retrieved from http://ctl.sri.com/publications/downloads/ITL_Research_design_29Sept09.pdf
- Silber, K. (1965). *Pestalozzi: The man and His Work*, Routledge. London.
- Silberman, C. (1973). *The Open Classroom Reader*. Vantage Books, New York, N.Y.
- Slavin, R. (1990) *Cooperative Learning*. Prentiss-Hall, Englewood, New Jersey
- Thomas, J. W. (2000). A review of research on project-based learning. Report prepared for The Autodesk Foundation. Retrieved May 18, 2009 from http://www.bie.org/index.php/site/RE/pbl_research/29
- Thorndike, E. (1903) *Educational Psychology*. New York: Teacher's College Press.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco: Jossey Bass.
- U.S. Department of Education (2001). No Child Left Behind Elementary and Secondary Education Act (ESEA) <http://www2.ed.gov/nclb/landing.jhtml>
- Volk, K. (2005). The Gary Plan and Technology Education: What Might Have Been? *The Journal of Technology Studies, Vol. XXXI, Number 1, Winter, 2005*
- Wagner, T. (2008). *The global achievement gap*. New York: Basic.
- Washburne, C. (1952). *What is Progressive Education? A Book for Parents and Others*. New York: John Day.
- Washburne, C., Marland, S. (1963) *Winnetka: The history and significance of an educational experiment*. Englewood, NJ: Prentice Hall.