Introduction

John Dewey (1859–1952) is the best known and frequently cited philosopher of education in America and maintains a large following elsewhere in the world. Indeed, it is not too much of a stretch to say that because of Dewey's attention to education and his philosophically like-minded students populating the faculty at Columbia University's Teachers' College, the discipline of philosophy of education began in earnest. Dewey wrote prolifically on education. He also wrote on a broad range of other social and political topics, as well as on all major branches of philosophy. Dewey lived a very long life (92 years), and was witness to the American Civil War (as a child), two World Wars, and the introduction of life-changing technologies such as the telephone, automobile, airplane, radio, television, blood transfusions, and penicillin. Indeed, one of Dewey's aims was to persuade his readers of the importance of technologies as means to improve their lives. Dewey steadfastly championed science and scientific inquiry throughout his many writings, and felt that refining our inquiries and improving our technologies were among the best ways to mitigate social problems.

Progressive education generally, and Dewey’s philosophy of education in particular, at least in North America, have always been popular in teachers’ colleges and with faculties of education. Having said this, pragmatism, and particularly Dewey's pragmatism, was ignored for many years by Anglo-American philosophers and it was not until quite recently that pragmatism's star rose again, thanks in large part to American philosopher Richard Rorty's celebration of Dewey (along with Ludwig Wittgenstein and Martin Heidegger). Since then, pragmatism generally, and Dewey's philosophy in particular, have enjoyed a renaissance of sorts. I shall discuss Dewey's educational pragmatism by first presenting a brief biography, followed by a general discussion of his philosophical commitments, and following this, his philosophy of education. I will then address some issues and controversies surrounding Dewey's philosophy of education. I provide a brief, annotated biography at the end of the discussion.

Brief Biography

John Dewey was born into a middle-class family in Burlington, Vermont, on October 20, 1859. He did quite well in school, and eventually matriculated at the University of Vermont, taking his degree in 1882. He taught high school for two years, first in Oil City, Pennsylvania, and then in Charlotte, Vermont. Dewey's first love was philosophy, and in an attempt to see if he was of the right philosophical mind, he sent an article to the editor of The Journal of Speculative Philosophy (William Torrey Harris), asking if Harris would consider reading it over in order to provide feedback as to whether there was a philosophical future for Dewey. There was indeed, Harris acknowledged, and he published the article, entitled, ‘The metaphysical assumptions of materialism’. Dewey decided to attend Johns Hopkins University in 1882. He received his PhD in philosophy in 1884, under the supervision of G.S. Morris.

Morris was one of the ‘new Hegelians’ who brought Hegel’s philosophy of spirit to American shores. Dewey imbibed this idealism, and his earliest articles and books discussed traditional philosophical topics in an idealist spirit. Dewey's other influence was physiological and experimental psychology, particularly the psychology of Wilhelm Wundt by way of Wundt's pupil, G. Stanley Hall. Hall would go on to write one of the defining texts of American
Dewey began his teaching career at the University of Michigan in 1885 and remained until 1894, with one year's absence in 1889 to take the Chair in Philosophy at the University of Minnesota after the death of his beloved advisor, G.S. Morris, who had moved from Johns Hopkins to occupy the position by that time. It was at Michigan that Dewey met, and married, Alice Chipman and the couple's first child was born while Dewey was still at Michigan. Dewey was to lose two of his biological children to illness. Alice, it is said, was never able to overcome her losses, and as she became older, her melancholy deepened and her temperament soured.

Dewey moved to the University of Chicago in 1894, at the insistence of the university's first president, William Rainey Harper. It was here, at the University of Chicago, that Dewey's involvement in pedagogy and educational theory began in earnest. It was at Chicago that he began to discuss public education seriously. Dewey was responsible for the management of the Laboratory School and, at one point, Alice Dewey was the school's principal. Dewey's investigations in the Laboratory School resulted in his most famous publication, *School and Society*, in 1899. The lessons Dewey learned in the Laboratory School would be drawn on repeatedly in his subsequent educational writings.

Dewey also began what would become a life-long interest in social democracy while at Chicago. Dewey witnessed first hand the gritty industrialization of Chicago, the masses of immigrants subjected to low wages and abysmal working conditions, the poverty and squalor of vast stretches of neighbourhoods, the failure of the schools to accommodate vast numbers of immigrant children, and the attempts at amelioration through organizations such as Jane Addams's Hull House. Indeed, Dewey was a frequent guest at Hull House, and gave lectures on various topics while there. Henceforth, Dewey began to write on social and political issues.

A fall-out with William Rainey Harper led to Dewey resigning his positions at the University of Chicago. Dewey left Chicago for Columbia in 1904, and remained there until his retirement in 1929. Dewey's influence began to be felt worldwide during his tenure at Columbia. He travelled extensively to such places as Turkey, China, Japan, and the Soviet Union, toured these nations' educational institutions, and gave hundreds of lectures and talks. He published many of his most famous educational writings during this period, including *Interest and Effort in Education* (1914), *Schools of Tomorrow* with his daughter, Evelyn (1915), and *Democracy and Education* (1916) – a favourite of Dewey's, which he once evaluated as the best overall statement of his philosophy. Dewey began to write even more forcefully on issues of politics. Though Dewey retired from Columbia in 1929, he did not slow down. If anything, he wrote more furiously than ever. Retirement gave Dewey the opportunity to expand on his earlier, philosophical interests: especially art and logic. Dewey was re-married in 1945 to Roberta Grant, Alice having passed away in 1927. Dewey collaborated with his old friend Arthur Bentley on *Knowing and the Known* in 1949, and was in the midst of revising his landmark text on metaphysics, *Experience and Nature*, when he died of pneumonia on June 1, 1952, in New York City, aged 92 years.

**Dewey's Pragmatic Philosophy**

Interestingly, Dewey did not call himself a pragmatist until well into his philosophical career. Pragmatism was the term William James associated with him, when he footnoted Dewey and his University of Chicago colleagues in his book, *Pragmatism* (1907), with regard to their work on logic. James famously credited Charles Saunders Peirce with coining the term, though
Peirce himself could not recall doing so. The terms Dewey generally used to describe his phases of thought were ‘absolutist’, ‘instrumentalist’, and ‘experimentalist’. He has also called his philosophy a ‘direct realism’, as well as a “naturalistic empiricism’ or ‘empirical naturalism’. These are in addition to pragmatism. During his tenure at Michigan, Dewey embraced the idealism of his advisor, G.S. Morris. Dewey would be led to call his early philosophical approach, ‘absolutism’. This he held from 1885 to 1894. He melded this with insights gained from the newly minted discipline of experimental psychology. In fact, Dewey’s ‘new Hegelianism’ was an amalgam of an absolute self with lessons learned from experimental studies on attention, perception, emotion, behaviour and cognition. Helpful to Dewey in this was the work of William James. James's *Psychology*, published in 1890, confirmed many of Dewey's nascent suspicions about the self, particularly with regard to the role of the 'mental'. The tension between Dewey's absolutism on the one hand, and experimental psychology on the other was ultimately resolved in favour of experimental psychology – though a ‘Hegelian bacillus’, as Dewey has called it, remains in his philosophy. We see evidence of Dewey's turn to functional–psychological understandings of human behaviour most clearly in his famous article, ‘The reflex-arc concept in psychology’ (1896). Here, Dewey criticizes behaviourists who insist that behaviour operates according to a reflex-arc mechanism. Instead of a pure stimulus-response reflex on the part of the subject, Dewey suggests a reflex circle, in which an organic connection between environmental stimuli, the sensory organs, the brain and spinal cord, and the resultant behaviour of the subject, take place. This accounts for the change in behaviour called ‘learning’ better than the reflex-arc theory.

Dewey and other scholars have named his second phase ‘instrumentalism’. This period lasted approximately from 1898 to 1918. The term ‘instrumentalism’ is largely based on his work completed at the University of Chicago, particularly in logic. This innovative work was published as *Essays in Logical Theory* in 1903. Crudely put, instrumentalism insists on there being a qualitative or quantitative difference in the outcome of any inquiry for genuine knowledge to have occurred. We might say, with William James, that for recognition, ‘there has to be a difference that makes a difference’. For Dewey and his students, logic was functional and developed and fulfilled its purpose in solving problems. However, there was nothing absolute, metaphysical or transcendental about logic, despite the reverence in which philosophers (especially Dewey's critics) seemed to hold it. Dewey would continue to write on the topic of logic, producing his masterpiece, *Logic: the Theory of Inquiry*, in 1938, at the age of 78.

Dewey's final phase of activity he labels, ‘experimentalism’. Dewey thought this a better term to describe his overall approach than instrumentalism, which had overly materialistic and utilitarian connotations. By the time Dewey wrote *Reconstruction in Philosophy* (1920), which called for a philosophy sensitive to ‘the problems of men’, by which he meant problems of communities, economics, politics, society, and state, he had envisioned the chief business of philosophy and allied disciplines as experimenting with natural and social phenomena in a quest to solve human problems. This carried through to the end of his life.

As I have suggested, Dewey's philosophy of pragmatism shares affinities with a number of other thinkers, including G.W.F. Hegel, Wilhelm Wundt, and with the pragmatists William James, Charles Saunders Peirce, and George Herbert Mead. Dewey differs from Hegel and Mead, however, in his emphasis on the importance of *scientific* inquiry, and in the case of Wundt, Peirce, and James, on the importance of attending to communal and social ties and bonds. Dewey would often urge his readers to adopt (and persuade others to adopt) scientific inquiry as the means by which to solve human problems. This went hand in hand with his further call for democracy and democratic living. Dewey saw scientific inquiry and democratic
living as of a piece. Dewey did not believe in absolutes (after 1895), supernatural beings, transcendental principles, Platonic forms or kinds, the irrefutability of logic, or the certainty of ideas. Instead, Dewey thought that the attention paid to these by contemporary philosophy was equivalent to ‘putting old wine in new bottles’. Philosophy had to overcome the shibboleths of the past, and ensure that these are not reintroduced in ongoing reconstruction of philosophy, if it is to be of benefit to human problems.

Much of Dewey's effort, then, was spent on combating these hidden but nevertheless, dangerously regressive tendencies in various branches and systems of philosophy. This we might call Dewey's ‘negative’ project. His ‘positive’ project, by contrast, was to push philosophy to help solve human or social problems, chiefly through theorizing ways to break down barriers such as class, race, geography, and gender that keep people apart. Communication and democratic living were always central strategies for Dewey. In the *Public and Its Problems* (1927), he lamented that the great American public was ‘lost’, and ‘bewildered’, and he felt that the solution for this was to marshal the forces of shared, social inquiry in a quest to solve social problems such as those mentioned above. The schools, needless to say, were to play a central role in this.

In the last phase of Dewey's philosophical thinking, he developed a novel philosophy of experience. Beginning with *Experience and Nature* (1925) and extending to *Art as Experience* (1934), and *Experience and Education* (1938), Dewey formulated an organic and naturalistic model of experience that placed the individual and her environment in a transactional relationship in which each reciprocally transforms the other. All organisms, human or otherwise, transact. There is a to and fro, whereby the organism is transformed by the environment and the environment transformed by the organism. On the part of the person, this transaction manifests as an experience. Experiences, Dewey claimed, were immediate. We have and undergo them. What is vital and unique to the human organism is selecting the qualities of satisfying experiences, and subjecting these to reflection in the quest for an end we anticipate will come about through our selection and reflection. When we do this, we begin to form intelligent habits, including the ‘habits’ of thinking, ordering, and controlling. These are the habits of inquiry. In time, we are able to inquire and use the habits of inquiry to achieve selected ends, leading to more and better experiences. This is as much a social and community undertaking as it is personal. Problems are better solved and satisfaction more easily achieved if problems are worked through in conjunction with others. In saying this, Dewey insists that problems are largely social. Individual problems have indirect bearing on social situations, as they take place in social contexts and generally involve one's conduct. Problems distanced from social situations, Dewey says, are often pseudo-problems. This is not to say that Dewey eschewed abstract fields or disciplines such as mathematics. It is Dewey's reminder that all legitimate problems have social import or connection, including the problems of philosophy.

Experience may also have an aesthetic element; those experiences that are most satisfying Dewey labels ‘aesthetic’, because they result in a ‘qualitatively immediate and unified, whole’. What counts as aesthetic for Dewey, then, is the quality of the transaction we have with the art object and the resultant experience we undergo. The work of art is the medium through which we have a ‘consum-matory’ experience. These experiences are educationally the most valuable. They often manifest for the student as the ‘aha’ moment, when the task, problem, subject under discussion, or art ‘come together’, and ‘make sense’. These are very often the experiences students remember, reproduce, and (most importantly for the context of education) from which students learn. These experiences stimulate a child on to further investigation and experimentation.
Dewey's final 'positive' philosophical task was to complete his theory of logic. He had consciously worked on this task for over 40 years, but was unable to commit fully until 1935. The result was an intellectual tour de force. Dewey's *Logic: the Theory of Inquiry* (1938) is his final and complete statement on the role of logic in problem solving, including problem solving in the contexts of ordinary living, laboratory science, mathematics, and social science. It is also a treatise on logic in its own right. Dewey's thesis is that logic is not an abstract, formal, irrefutable system, but a series of conclusions of investigations, built up over time, that remain susceptible to ongoing inquiry. For Dewey, logic, like all forms of inquiry, corrects itself: it remains attuned to the existential aims and goals for which it is used, and it adjusts itself when anticipated outcomes or solutions are not met. Of course, not all see logic this way, and Dewey was often pushed to defend his non-mathematical, non-symbolic accounting of logic. Dewey's reply was forceful and direct. He castigates formal logic for remaining abstract and aloof from the everyday personal and social problems of peoples, and those philosophers of formal logic (Dewey has Russell and Whitehead in mind) for perpetuating the 'myth' about the absoluteness of logic. In place of this, Dewey provides a context-sensitive logic; differing (logical) methods will have to be used in differing circumstances. For example, the methods of mathematics that are crucial in certain physical experiments are often unnecessary in social science contexts. Dewey also focuses on the function, rather than the necessity, of traditional philosophical topics such as concepts, objects, and ideas. These, Dewey says, are tools having their worth in experimental outcomes. If they cannot help solve the problems under consideration, their utility is questionable at best.

**Dewey's Philosophy of Education**

It was at the time of his tenure at the University of Chicago that Dewey became involved with the newly developed Laboratory School. Dewey was given two departments to run – the department of philosophy and the newly opened department of pedagogy. Dewey gave courses in both. Among his responsibilities as head of the pedagogy department was to develop, then manage, a Laboratory School, beginning in 1896. This school was composed largely of children of the staff and faculty at the university. Dewey observed the children, oversaw the curriculum, took charge of the operating budget, and assumed overall responsibility of the school. He likened the school to a 'living physiology laboratory', which would yield valuable information on the psychological and social development of children. Dewey published a series of lectures given to parents under the title, *School and Society* (1899) and this sparked nothing short of a revolution in educational theory.

Prior to Dewey, educational theory in America consisted of traditional pedagogical methods such as rote, drilling, memorization, and recitation, together with the 'new' theories of Johann Heinrich Pestalozzi, Johann Friedrich Herbart, and Friedrich Wilhelm August Froebel. These were child-centred theories that played down the importance of traditional methods, but often (especially in the case of Froebel) emphasized grand metaphysical speculations on the nature of the child and the purposes of education. Dewey rejected these as well, reminding his readers that there was no need to invoke supernatural or transcendental ideals, aims, and purposes for the benefit of educating children well. These were superfluous at best and intrusive at worst.

Dewey emphasized several key elements in what has come to be called 'progressive education'. Chief among these is the breaking down of dualisms common to educational theory and practice. We might follow the example in the previous section, and call this his 'negative' philosophy of education. These included the dualism between the child and her
physical and social environment, the child and the curriculum, the child's interest and effort, together with the general opposition of the individual and society. Dewey commented on each of these dualisms in *School and Society, and Democracy and Education* (1916) and other educational writings, suggesting that the way we think of the relationships between ourselves and the environment, others, and the curriculum, and individuals and society, is at the root of our malaise. In place of these dualisms, Dewey advocated an organic, even holistic, education; one in which the child is in a thoroughgoing relationship with her community, society, and curriculum. What Dewey hoped for from schools was an educational community that would nurture a child by providing her with opportunities to explore her everyday world, introducing new topics through connection to the old, and stressing interpersonal and relational dimensions of her development through shared activities. This extended to the curriculum: a child was not able to begin with abstract, formal, or in any event, unfamiliar content without great risk of boredom or misunderstanding. This sort of curriculum has to be worked up to. Dewey did admit that some rote and memorization had to take place in certain contexts (French classes at the Laboratory School were good examples), but he always emphasized the importance of introducing the curriculum by degrees, and through building up to formal and abstract subject matters.

Dewey considered the child a bio-psycho-social organism. Unlike most animals, we are born helpless, and only gradually come to maturation with the intensive support of our families. We are also irreducibly social creatures who learn in the context of our families and communities, through speech-groups, by way of habits proceeding from the simple (crawling) to complex (solving quadratic equations). We are, developmentally speaking, in a state of ongoing growth. This growth is biological, but it is also personal, emotional, and social: in short, it involves all aspects of the person. Dewey famously said that the aim of education was growth, and this led many to speculate on what was meant by growth. Dewey pointed to the ceaselessness of the to-and-fro responses between ourselves and our environments: we never stop growing until we stop transacting with our world. Positive or legitimate growth occurs when we are able to exploit this reciprocal relationship to our advantages, and enrich our experiences – both personal and social – thereby.

The other key characteristic Dewey discussed at length was inquiry, and we may profitably call this appeal to inquiry Dewey's 'positive' philosophy of education. Inquiry was central to the child and central to the school in helping the child develop. Inquiry is the key to growth, because inquiry is the tool that helps us to control and ultimately bring ourselves into constructive reciprocal relationships with our environments. We do this by problem solving. The school helps to facilitate this problem solving: first, by identifying children's interests and matching these with ordinary, everyday problems that need solving; secondly, by gradually increasing the complexity and abstractness of problems and solutions. As this is happening, the child's powers of inquiry become formalized. The pinnacle of inquiry, so to speak, is scientific inquiry – the sort of inquiry that is done under controlled, experimental conditions, often in laboratories. A child may never practice inquiry at such a formal stage in her future career: however, it is important to introduce this level of inquiry to children so that they might gain an appreciation of it.

Dewey's educational pragmatism was wildly popular. His two most famous books, *School and Society* and *Democracy and Education*, were staples of teacher education programmes across the country and abroad. Indeed, Dewey was a central figure in what became the progressive education movement. This was spearheaded by several of Dewey's ex-students from Columbia University, especially William Heard Kilpatrick. So powerful was the progressive education movement that Dewey was eventually led to play down its rhetoric in his last book-
length manuscript on education, *Experience and Education* (1938). Dewey never claimed to be fully child-centred. He insisted, rather, on consideration of the interests of the child in developing educational aims. Likewise, Dewey never suggested that children be granted the permissiveness, both with regard to discipline and curriculum, that some progressive educators were demanding. In fact, Dewey claimed, freedom could only arise in contexts where some element of social control exists to guide children. Freedom is only possible if a child is able to develop and practice the habit of self-discipline, and this requires a context with rules and obligations. Attending to a child's experiences and not merely her outward behaviour, Dewey said, was the key to educating.

**Some Criticisms of Dewey**

Not everyone was or is elated with Dewey's philosophy of education. Issues and concerns regarding the ability of progressive education, and Dewey's philosophy of education in particular, have long been raised. I shall discuss three of these. The first concern, that Dewey's philosophy of education leaves little room for imagination or emotion, was raised by the analytic philosopher Israel Scheffler. The second concern, that Dewey's philosophy of education sidelines, or even denigrates, abstract and intellectual thought, was a charge raised by the historian and liberal social critic Richard Hofstadter in the 1950s, the British philosopher Anthony O'Hear in the 1980s, and more recently by historian Diane Ravitch in the 1990s. It has recently resurfaced, in the work of Henry Edmunson III. A third concern is that Dewey's philosophy of education, and his understanding of the role of the schools in particular, is unable to challenge and overcome corporatism and the monopolies of vested interests. His philosophy of education is romantic, idealistic, and ill prepared for the reality of power in institutions. This is a concern shared by a number of past and present thinkers, supporters as well as critics of Dewey, who worry that progressive education is unable to shoulder the burden of dissolving entrenched systems of power. Some have even suggested that Dewey's pragmatism is complicit in maintaining the capitalist status quo. Supporters of Dewey who worry over such issues include the philosopher John Stuhr. Detractors have included notable philosophers of education as varied as Eamon Callan, R.S. Peters, Chet Bowers, and Kieran Egan.

The first allegation is that Dewey leaves little room for the imagination and the emotions. This is because his concern, through his writings, seems to be the promotion of the scientific method to students. This is tantamount, critics complain, to producing mechanized pupils, able to experiment in a wide variety of settings, but unable to draw on their imaginations or emotions. Dewey's retort is found in several works, most notably *How We Think*, 2nd edn (1933), and *Art as Experience*. In the former, Dewey discusses imagination as the necessary ingredient for 'deliberative rehearsal' – the forecasting of tentative solutions in inquiry. Far from imagination being absent in inquiry, Dewey says it is a vital element. Emotion is treated most fully in Dewey's *Art as Experience*. Here, Dewey claims emotions are a complex of reflex and desire, and arise in an existential situation or experience. Emotions exist only in the context of desire or repulsion. Artists can evoke emotion by drawing out desires. Indeed, this is part of what makes an aesthetic experience 'consummatory', in Dewey's words: to evoke emotion (especially through desire) is to ensure a (more) satisfying experience.

The second allegation concerns the underestimation or denigration of intellectual thought. This is an old, yet frequently repeated, charge against Dewey. In concert with those who criticize Dewey for having little role for imagination are those who attack him for ignoring or downplaying ideas, concepts, and logic. These, critics say, are vital to the student's intellectual development, and to cast them aside in favour of scientific method is to ensure the
impoverishment of children. This is a charge common to both American philosopher Israel Scheffler and British philosopher R.S. Peters. Some thinkers, such as Edmundson and O'Hear, also argue for a return to a more traditional education – in O'Hear's case, with attention to contemporary social problems. Dewey's response to these allegations is blunt: concepts, ideas, and logic are tools that can be profitably used, but are not to be made absolute, permanent, or fixed. Traditional education reifies rote, and bears little connection to present-day issues and problems. A traditional education paired with attention to contemporary issues would be self-contradictory: one would give way to the other. When some critics complain of the supposed denigration of concepts, ideas, and logic, what they are often getting at is the unwillingness of Dewey to place these on a pedestal.

In fact, concepts, ideas, and logic are given much attention in Dewey's writing. In his final account of logic, Dewey reserves several chapters for discussion of concepts. Concepts (including mathematical abstractions) are vital to carry out inquiries. Concepts organize disparate sets of data; they categorize relations among complex phenomena; and this allows us to understand and make these phenomena meaningful. Concepts are also necessary tools for formulation of potential hypotheses and their resultant testing. We cannot, for example, hypothesize that a balloon filled with gas lighter than air will rise unless we understand something of gravity (a concept), and air and gases and their laws (more concepts). Likewise, we cannot easily conclude that an eight-legged arthropod is not an insect if we do not have the concept of arachnid.

The final allegation is the most difficult of all. How is progressive education, and Dewey's philosophy of education in particular, to thwart what seems to be entrenched systems of power, privilege, and the co-optation of the schools for interests other than those of parents and children? This question is similar to the question Dewey himself asks in *The Public and Its Problems*: that of where is the public? For Dewey, only the public coming together in community, to solve its problems, is able to rescue the institution of education from its less than noble controllers. However, schools are often said to be precisely the institutions designed to provide the intelligent thinkers and problem-solvers needed to think and bring the public together in the spirit of shared inquiry.

It hardly needs to be said that there are no easy answers to this question. Dewey often thought that if we could persuade people to communicate with one another and help one another to share problems, they would find their lives less burdensome and difficult, and a robust public might emerge. Dewey wrote many books for the public, urging people to try intelligent social inquiry. He castigated those who stood in the way of such inquiry, particularly those who wished to return to a supposed ‘golden age’ free of social problems, or to imaginary timeless values, truths, or principles. In the end, what Dewey had to offer was persuasion: only if we, in various communities, organizations, and institutions, can operate democratically, and share and solve one another's problems, in a spirit of reciprocity, will we find the common ground we need to begin developing ‘The Great Community’. It is fair to argue that Dewey's faith in the public and, particularly, the schools, as a way towards fully democratic living, is naïve. However, it remains to be seen whether those who are critical of Dewey's hope are able to offer a better model.

Further Reading

There is no substitute for reading Dewey. Key texts include *Democracy and Education* (1916), *How We Think*, 2nd edn (1933), and *Experience and Education* (1938). In my opinion, the best introduction to Dewey in the context of teacher education is by Dougles J. Simpson, Michael

**References**


- philosophy of education
- school laboratories
- progressive education
- pragmatism
- inquiry
- logic
- reflexes

http://dx.doi.org/10.4135/9781446200872.n7