ACADEMIC STUDIES, SCIENCE, AND DEMOCRACY: CONCEPTIONS OF SUBJECT MATTER FROM HARRIS TO THORNDIKE[1]

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When Ellen Condliffe Lagemann described what she called the troubling history of education research, she claimed that, in the early years of the twentieth century, Edward Lee Thorndike's narrow model of science replaced John Dewey's more open ideas. According to Lagemann, sexism was an important reason for Thorndike's triumph. She contended that most teachers were women. The men who worked as educators served as the teachers' supervisors. Lagemann contended that Thorndike offered a vision fitting this autocratic system wherein male researchers found the best practices, male supervisors dispensed these plans within their schools, and the women teachers followed the orders. She added that Dewey's view did not fit such a bureaucratic model because he wanted teachers, supervisors, and researchers to cooperate in a democratic fashion.[2]

In describing the changes that took place in educational research, Lagemann devoted her attention to the difficulties caused by women's presence in the teaching force. Other writers pointed to questions about the nature of expertise that contributed to the rise of authoritarian models of school administration. For example, Robert Welker argued that serious problems arose when people thought experts should offer technological information without any value judgments. In his book, Welker discussed how several different educators sought to include morality within their visions of the work teachers performed.[3]

This paper will differ from the works of Lagemann and Welker. Instead of looking at problems in educational research or considering the nature of expertise, this paper will examine the ways three leading intellectuals, William Torrey Harris, John Dewey, and Edward Lee Thorndike, thought about the subject matters of schools. The aim will be to show that Dewey broke with Harris's idealistic view of human knowledge and made Thorndike's ideas seem reasonable. Such an argument fits the chronological pattern of their published works.

Harris belonged to an earlier generation than did Dewey and Thorndike, who were contemporaries. Harris published his major educational treatise in 1898 and he died in 1909. Dewey removed himself from educational concerns after leaving the University of Chicago in 1904 although he published *Schools for Tomorrow* and *Democracy and Education* while he was at

Columbia. Thorndike published the first volume of his *Educational Psychology* before World War I; however, Thorndike continued to write educational works well into the twentieth century.

What was the popular conception of knowledge in the late nineteenth century?

In the middle of the nineteenth century, normal schools concentrated more on teaching methods than on subject matter or curriculum issues. At least, this is the view that Hariklia Efthimou presents in his discussion of the method of object teaching that spread from the Oswego, New York schools. According to Efthimou, object teaching dominated teacher training in normal schools in the second half of the twentieth century. The method arrived in the United States in 1861 when Edward Austin Sheldon invited Margaret E. M. Jones of the Home Colonial Training Institution in London, England to open a teacher training school in Oswego.[4]

The object teaching had appealed to Sheldon because he thought it brought life to schools. Instead of working through books, the teachers in Oswego arranged lessons in which the children looked at some object, such as a basket, described its parts, and explained its uses. As the lesson progressed, teachers might ask what would result if the basket lacked certain parts. Because these lessons appeared in sequences of increasing difficulty, the teachers believed that the children learned to perceive things, to call their senses into action, and to make correct judgments.[5]

Despite the popularity object teaching enjoyed, some educators complained that the method lacked academic substance. In 1874, the National Education Association (NEA) charged Duane Doty and William Torrey Harris with the task of writing a theory of education that explained the need for academic subject matter.[6]

Although Doty and Harris acknowledged that teachers followed the object method because they wanted the students to develop their own powers of observation, Doty and Harris contended that the method had the opposite effect because the students had to depend on the teacher to select the object, to indicate the important parts, and to ask leading questions. They noted that the students could not move ahead independently. With textbooks, however, the students could reconsider difficult passages or read ahead as they chose. Thus, Doty and Harris thought that textbooks enabled the students to develop their own powers and made the classroom more democratic. Furthermore, they contended that the textbooks were superior because authors considered the selection of the material more carefully than did the teachers of the object lesson.[7]

Two years later, Harris joined with two other prominent school men to explain what the content of the curriculum from primary school to college should be and why students should follow such a program. It was a set of academic courses that teachers treated separately. Divided into five parts, the curriculum included mathematics and physics, the natural sciences, philosophy and psychology, social and political history, and fine arts including literature.[8]

Although Harris and co-authors believed such a curriculum would develop mental discipline in the children, they gave the term a unique meaning. For Harris and his colleagues, mental discipline derived from studying something related to the students' rational forms of life. In this case, the study of the classics in Latin and Greek were essential because it forced the students to think about things that were far from their own experience, but related to their present society because western thought derived from ancient Greece and Rome. Thus, the students mastered material that applied in general ways to their lives but did not build on their preferences.[9]

Harris repeated these ideas and expanded them in several later works including the NEA's 1896 Report of the Committee of Fifteen that called for an academic curriculum for elementary school children. In his many reports and articles, Harris repeated the ideas that students should study these separate subjects because they provided views of important aspects of the students' culture. With such a curriculum, students learned to be free, contributing citizens in a democracy. They understood that institutions had come into being to advance human values.

Although John Dewey wanted students to recognize the ways human society developed, he did not want the students to concentrate on an academic curriculum. For example, when he explained the rationale of his laboratory school to interested parents, he noted that manual training activities formed the core of the curriculum. He added that these parents often approved of such lessons in woodshop and cooking because they enabled the children to help with household tasks. Eschewing such a practical goal, Dewey claimed that the school wanted to use the work of shops and kitchens to help students understand the changes that had taken place in the world. For example, by working with flax, cotton, and wool, the students learned how people employed these fibers in the manufacture of clothing. In the process, they learned how science was the means to improve the conditions of life.[10]

When Dewey called the lessons in his school, occupations, he took the term from kindergarten teachers. Noting that his school shared some similarities with Froebel's kindergarten, he disagreed with the tendencies of kindergarten teachers to depend on a collection of about twenty different gifts. One such gift was a set of small colored woolen balls attached to a string.

Another gift included a set of wooden two inch spheres, cubes, and cylinders hanging from a stick.[11]

Although Froebel sought to lead the children's impulses in the direction of cooperative living, Dewey complained that Froebel and the kindergarten teachers failed because they imposed adult understandings on the children. For example, Froebel believed that when the children watched the wooden sphere, the cube, and the cylinder, they realized the universe was united because everything was in everything. For example, kindergarten teachers thought that when the children spun the cube on its string, they would see a cylinder as it turned. Dewey did not think children could realize such an insight unless teachers told them what symbolic meaning the gifts had. As a result, Dewey contended that children in traditional kindergartens learned to repeat the teacher's explanations rather than observe conditions and solve problems.[12]

The kindergarten teachers used the term, occupations, to describe the activities children did with the gifts. When Dewey used the word, occupations, he defined it as activities in school that reproduced some form of work carried on in social life. Through these occupations, Dewey wanted the children to learn to solve problems and trace the economic development of humankind through the occupations. At the same time, though, Dewey considered the subject matters to be integral parts of the occupations; they were tools. According to Dewey, children could use such subject matters as mathematics, history, or biology to advance their efforts because those subject matters represented accumulations of human beings' past efforts to solve similar problems. In offering his definition of the subject matters, Dewey joined the subject matters with the students' activities. They were both experiences. The subject matters recalled the experiences of the human race, and the classroom activities or occupations reconstructed those activities.[13]

How did Harris's view of subject matter differ from Dewey's?

Both Harris and Dewey considered the subject matters to be the result of experiences, and they agreed that an experience had two aspects. It was something a person did and also underwent. Although they agreed that experiences raised people out of their particular lives, they disagreed about the ways experiences influenced people. On the one hand, Harris took the view that people developed different patterns of thought as they matured. On the other hand, Dewey considered the person's resulting growth to be an unbroken developmental chain in which children learned to follow the best model of thinking found among adults.

Harris argued that experiences took people out of the level or type of learning they had acquired. Calling this movement self-activity, Harris explained that people began with sense perceptions. Although such perceptions distinguished the self from the world, they were immediate. With the advent of memory, the person could recreate the sensations even when the objects were absent. To aid the process of remembering things, the person grouped them into categories. With the introduction of language, the children recognized the difference between particular objects and universal qualities. As a result, they moved toward rational thought.[14]

As the examples above indicate, Harris considered thinking to be a set of stages. While children saw things in the world, they were unaware of any relationships until they acquired memory. At this point, the children saw the object in relation to a universal quality. As the children approached maturity, they saw the objects change as the relationships among the objects changed. At this point, they looked for forces that determined the reality of the things.[15]

As the explanation above implies, Harris believed that self-activity was a process that took place within the children much as the child derived nutrition from food; however, Dewey took the view that an experience could not help an individual unless it was part of the person's effort to modify the environment. Thus, although Dewey believed experiences affected the subsequent experiences of people, he did not think that the essential nature of the experiences changed as the children proceeded through them. For example, when a child learned to speak, he or she developed facility in enlisting other people in play. The skill or information served to solve some problems and it should lead to new opportunities for experiences. Although Dewey considered this openness to new experiences as essential for growth, he defined this growth as the ability to decide what to do and how to do it. Because he thought experiences involved some sort of doing, they remained similar at all levels although the judgments would become more complicated. Further, as people achieved their goals, they should recognize the effects of various changes they made. For young children, the cause and effect relations were easy to observe. Although adults may confront situations in which the relationships were distant, they would employ the same process to determine how things interacted. In both cases, Dewey claimed, the best way to recognize cause and effect was to use the scientific method.[16]

How did Harris and Dewey think that school subjects prepared children for life in society?

According to Harris, children became human beings through the educational influences of five cardinal institutions. The first was the home where the infant learned obedience, courtesy, and habits of cleanliness and self-control. Although there was no spiritual growth at this point, the child prepared

for the spiritual attributes associated with intellect and will-power. The second institution was the school where the academic subjects acted as windows for the soul by enhancing separate ways of thinking. The third cardinal institution was the world of work and the person's special vocation in which he or she learns to participate with other people in producing the material wealth all people need. The fourth institution was the state that provided the protection within which other institutions could flourish. Finally, the church enabled people to realize that their beings transcended nature provided the church's theological perspective implied that the absolute was a conscious person. Harris added that such a view was the only perspective that supported the favorable development of every person.[17]

Within the schools, Harris wanted the students to attend to five distinct academic areas because these categories opened into the five divisions of human life. Two studies, arithmetic and geography, enabled children to understand how people conquered nature. A third study, history, showed the will power of the student's nation. The fourth, language and grammar, opened the student to the inner workings of the mind and its logical thought processes. Finally, literature enabled the students to appreciate the fullest expressions of the ideals and longings of the human race.[18]

While Harris argued that the home, the school, and the society helped children fulfill their destinies, Dewey united the influence of home, school, and society into some form of character training. For example, he noted that children on farms who participated directly with adults in work necessary for the well being of the family developed into diligent, cooperative members of the society. Dewey argued that schools should imitate well appointed homes with gardens, workshops, libraries, and kitchens to restore the self discipline children developed in rural settings. Further, when the classrooms were in urban schools, the city provided opportunities for increased acquaintance with human nature that agricultural villages lacked.[19]

Not only did Dewey want to blend life in the home, the school, and society, he wanted to organize the subject areas in schools around their usefulness in illuminating social undertakings. Furthermore, Dewey complained about the tendency to set up subject matter as things with intrinsic value and asked educators to select subject matters in line with the needs of the existing community life. Although Dewey acknowledged that subject matters should enhance humane qualities rather than serve professional desires, he avoided a sharp distinction by adding that subject matters serve humanity when they connect with the common interests of people. Thus, he called for curriculums that enabled students to learn about the problems the community members faced.[20]

To summarize, on the one hand, Harris believed that social institutions, such as schools, served to increase the freedom of the individual. Such desires for freedom and the development of individual reason represented the longings of the human race and marked the progress of civilization. On the other hand, Dewey saw in human freedom the means to improve the social order. Dewey claimed that a progressive society saw individual freedom as the means of its own growth. He warned that societies that suppressed individual differences could not develop unique ways to solve new problems. In contrast, Dewey believed that a democratic society would call on these diverse individual traits to aid in the development of hypotheses worthy of testing and in discovering the ways to apply the resulting innovations.[21]

The differences are important. Harris considered human freedom and rationality to be intrinsic human rights or attributes, and he thought that societies were formed to protect those rights. Although Dewey considered human freedom and rationality to be important, he did not see them as intrinsic human rights. To Dewey, freedom was a socially useful value. When Dewey defended human freedom on utilitarian grounds, he aligned his thought in ways more similar to Thorndike's than to Harris'.

How did Dewey make Thorndike's ideas seem reasonable?

Thorndike expressed Dewey's hope that educators could prepare children for life in the community; however, he thought the best courses were those that prepared for some sort of vocation. Following Dewey's criticism of academic courses, Thorndike disapproved of focusing on what he considered vague qualities of mind unless teachers could prove that academic subjects had beneficial effects. For example, he noted that some teachers believed that the study of geometry improved students' ability to reason. Because there was no evidence this was true, Thorndike saw no reason to require students to study the subject. Instead, he noted with approval that, by 1910, high schools had offered more vocational courses such as bookkeeping, stenography, and domestic science than they had thirty years earlier.[22]

Thorndike began his work in education when he moved to Columbia and began a series of experiments with R.S. Woodworth to determine if training in one set of skills enabled a person to learn another. Thorndike's studies on the transfer of training appeared in 1901. In this series of articles, Thorndike stated that improvement in one mental function did not influence a student's ability in other mental functions. To arrive at this conclusion, Thorndike and Woodworth asked subjects to perform some task such as estimate the size of triangles. When the subject acquired mastery in this skill, Thorndike and Woodworth asked the subject to estimate the size of an object with a different shape. They found that the speed with which a subject mastered

the ability to estimate the size of the different object depended on how similar the new object was to a triangle.[23]

Calling his view of psychology *connectionism*, Thorndike developed the Laws of Habit Formation. The first law was that the more emphatically a response was connected with a particular situation, the greater the chances that it would be repeated in such a situation in the future. The second law was the greater the satisfaction from giving a particular response, the greater the chances that it would be given again in that situation. From his studies of transfer, Thorndike noted that practice was beneficial in performing certain tasks. He added that there was no simple way for a person to develop general powers such as concentration from a particular exercise. Although the extent of any transfer of skill depended on the similarity of the elements in the activities, Thorndike was unsure which elements had to be identical or how many identical parts there had to be.[24]

In his major text, *Educational Psychology*, Thorndike claimed that any behavior was a response to a situation. That is, once a person made a response, he or she formed a bond or connection in his or her mind between the situation and the response. Although Thorndike argued that these bonds were the bases of intellect, character, or skill, he did not think the bonds appeared arbitrarily. The response a person gave was somehow rooted in original tendencies present in human nature. For example, Thorndike argued that the fact that people could think was due to original human capacities to associate or analyze phenomena; however, the content of people's thoughts derived from the environmental conditions under which they used those capacities of thought.[25]

Although Thorndike's views were simple, they were popular. By 1915, the idea of stimulus response bonds became the core of educational thought. For example, William Heard Kilpatrick used Thorndike's laws of learning to explain the effectiveness of the project method. Most important, according to Harold Rugg, from 1913 until the Great Depression, teachers colleges throughout the United States used Thorndike's *Educational Psychology* as the standard text.[26]

Despite the popularity Thorndike enjoyed, Boyd Bode complained that Thorndike's so-called laws of learning simplified mental processes to the point that Thorndike ignored thinking. To explain this point, Bode recalled Thorndike's example of an animal running when a tiger appeared. According to Thorndike, the situation, seeing the tiger, brought out the response, running, that satisfied the animal because it saved the animal's life. Thorndike added that if the animal behaved differently in another but similar situation, this happened because the situation appeared different for some reason. Thus, Bode complained that Thorndike's formulation gave no role to foresight or

intelligence. Different responses came about because the situations had changed in some ways. Bode added that, when Thorndike applied his model to thinking, he avoided any explanation of how people thought or how people could expand their native capacities. As a result, Bode contended that Thorndike's view of learning was not appropriate for a curriculum dedicated to democracy wherein the members cooperated with each other and with other groups to pursue shared interests and every individual had the fullest opportunity to express his or her native capacities.[27]

Although Bode pointed out the failure of Thorndike's theories to account for thinking, he did not see any connection between Dewey's ideas and Thorndike's. Because of differences in Dewey's and Thorndike's ideas of psychology, Bode agreed with Lagemann that Dewey was more of a democrat than Thorndike. Nonetheless, when Dewey explained how people think, he noted that thought was the recognition of the connection between a certain way of acting and a certain consequence. In this definition, Dewey added to Thorndike's model that people can remember the consequences that resulted when they had done them previously and they could select which actions had the best effects. Thus, despite the differences, Dewey held ideas similar to those of Thorndike.[28]

Conclusion

A Catholic theologian, Jacques Maritain, disagreed with Bode about whether Dewey's ideas could enable people to form communities. In 1943, Maritain complained that Dewey's ideas of progressive education led teachers away from the art of education because this pragmatic view refused to acknowledge an end or aim for education beyond further growth. In making this complaint, Maritain argued that the pragmatist view that education should grow in whatever direction an emerging future makes feasible made the means of instruction more important than the ends. Worse, he added it would lead to a collective society because the values made at each moment would reflect the social conditions or the state.[29]

In making his complaint against the pragmatic view of education, Maritain took Harris's side in contending that the purpose of social life was to advance the human right to the free development of intellectual abilities. Because Maritain believed that human dignity derived from the intellect, he worried that the concern for doing things would denigrate the essential life of the mind.[30]

Maritain's answer was to maintain an academic course of study because he believed those subjects enabled people to use different ways of thinking than they would in such practical activities as planting a garden. Although Maritain acknowledged that the academic subjects could advance

practical activities, he thought they were more valuable because they released and strengthened a person's human nature. Consequently, Maritain complimented progressive education for making education experiential and closer to concrete life permeated with social concern. Yet, he added that the important aspects of a civilized person were within an inner center because that was the source of personal conscience from which came idealism, generosity, friendship, and independence from popular opinion.[31] Because Maritain believed that academic subjects appealed to this center, he shared Harris' views of the subject matter appropriate for a democracy and disapproved of Dewey's occupations and Thorndike's emphasis on vocational training.

NOTES

[1] This paper is adapted from the author's recently published text, *A History of American Education.* The publisher, Allyn and Bacon, gave the author permission to present the paper to the conference and to submit it for publication in the proceedings.

[2] Ellen Condliffe Lagemann, *An Elusive Science: The Troubling History of Education Research* (Chicago: University of Chicago Press, 2000), ix-xvii.

[3] Robert Welker, *The Teacher as Expert: A Theoretical and Historical Examination* (Albany: State University of New York Press, 1992), 129-137.

[4] Hariklia Efthimou, "Object Teaching," in *Historical Dictionary of American Education,* ed. Richard J. Altenbaugh (Westport, CT: Greenwood Press, 1999), 265.

[5] E. A. Sheldon, *Lessons on Objects, Graduated Series; Designed for Children of Six and Fourteen Years: Containing also Information on Common Objects* (New York: Charles Scribner & Co., 1866), 3-21.

[6] Duane Doty and W. T. Harris, *Statement of the Theory of Education in the United States as Approved by Many Leading Educators* (Washington, DC, Government Printing Office, 1874).

[7] Ibid.

[8] National Education Association, "A Course of Study from Primary School to University." In *The American Curriculum: A Documentary History,* eds. George Willis, et al., (Westport, CT: Praeger, 1994), 73-83.

[9] Ibid.

[10] John Dewey, *School and Society & The Child and the Curriculum* (Mineola, NY: Dover Publications, 1915), 5-20.

[11] Readers will find pictures of Froebel's gifts and the ways kindergarten teachers used them in Norma Brosterman, *Inventing Kindergarten* (New York: Harry N. Abrams, Inc., 1997).

[12] Dewey, *School and Society*, 72-78.

[13] Dewey, *School and Society*, 83-87, 109.

[14] William T. Harris, *Psychologic Foundations of Education* (repr. 1969, New York: Arno Press, 1898), 178-180, 198-199.

[15] Harris, *Psychologic Foundations*, 206-220.

[16] John Dewey, *Experience and Education* (New York: Collier Books, 1938), 34-38, 83-85.

[17] Harris, *Psychologic Foundations*, 264-269.

[18] Harris, *Psychologic Foundations*, 322-323.

[19] Dewey, *School and Society*, 24-25.

[20] John Dewey, *Democracy and Education: An Introduction to the Philosophy of Education* (repr. 1916, New York: Free Press, 1944), 191-192.

[21] Dewey, *Democracy and Education*, 305.

[22] Edward L. Thorndike, *Education: A First Book* (New York: Macmillan, 1923), 112-122.

[23] E. L. Thorndike and R. S. Woodworth, "The Influence of Improvement in One Mental Function upon the Efficiency of Other Functions," *Psychological Review* 3 (1901): 247-261.

[24] Thorndike, *Education*, 115-116.

[25] Edward L. Thorndike, *Educational Psychology: The Original Nature of Man* vol.1 (1913 repr. New York: Teachers College, 1923), 1-4, 24.

[26] Harold Ordway Rugg, *Foundations for American Education* (Yonkers-on-Hudson, NY: World Book Co., 1947), 124-125.

[27] Boyd H. Bode, *Modern Educational Theories* (New York: Macmillan Co., 1927), 189-191.
[28] Dewey, *Democracy and Education*, 144-151.

[29] Jacques Maritain, *Education at the Crossroads* (New Haven, CT: Yale University Press, 1943), 17-18.

[30] Maritain, *Education at the Crossroads*, 9.

[31] Maritain, *Education at the Crossroads*, 16.