Learning Through Projects: Commonalities Among the Project Method, Project Based Instruction and the Project Approach

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INTRODUCTION

Educating through purpose is the foundation of several methods that use projects to organize instruction. Although these methods are quite similar, there are some important conceptual differences that are currently at risk of being overlooked due to similarities in terminology. The project method, project based learning, and the project approach, are all valid approaches to instructional delivery. It is unfortunate that the confusion created by the terminology appears to be creating isolated discussions. The purpose of this article is to identify some of the similarities and differences among these methods in the hope of encouraging new developments in project-related instruction.

BACKGROUND

Philosophically, the modern project method had its genesis in the American school of pragmatism as espoused by John Dewey, Charles Sanders Peirce, and William James (James, 1899; Peirce, 1878). The concept that results are the defining qualities of the solution in preference to the processes needed to reach those results would free American educational thought to explore innovative instructional methods. Dewey proposed that learning required a purpose and that purpose was the driving force behind action (Dewey, 1896). He encouraged the development of educational systems that allowed students to explore academic subjects through the use of experiments and applied studies (Dewey, 1918). His idea of supporting learning through activity would greatly influence early developments in engineering education and industrial arts education in the United States.

At the turn of the 20th Century, several individuals were experimenting with variations of the project method. Rufus Stimson, working in agricultural education, introduced the home project method in 1908 (Moore, 1988). This system assigned extensive projects such as animal husbandry and agronomy projects for agricultural students and these projects were assessed by agricultural instructors who traveled to review these projects. Projects were often home-based and the project was integrated into the life of the family. William Kirkpatrick would popularize the project method in 1918 in his publication titled "The Project Method" in Teachers College Record and broaden the methods appeal to nonagricultural applications (Kirkpatrick, 1918).

An exhibit showcasing the Russian Method at the 1876 Centennial Exhibition in Philadelphia is widely credited as influencing the development of project centered instruction in the manual arts (Barlow, 1967; Bennett, 1926). Under the direction of Victor Della Vos, this system developed a series of progressive exercises to develop manual skills. Students created small objects that showcased their mastery of each set of skills. As students advanced through the course, the teacher became less involved with instruction so that by the end of the program, the student had assumed significant responsibility for their own learning (Bennett, 1937). John Runkle, president of the Massachusetts Institute of Technology, after viewing this exhibit, became a strong supporter of an applied approach to engineering education and was influential in promoting this type of education in the secondary school system (Runkle, 1876). In turn, Runkle influenced Calvin Woodward who promoted the importance of an applied element in education and reformed the St. Louis school system to put his ideas in to practice (Woodward, 1903, 1906). Students received instruction in various methods and processes using short exercises. The project was assigned at the conclusion of the instruction and allowed students to apply the skills that they had mastered in the project creation or solution. Charles R. Richards altered this method so that work on the project was fully

integrated into the course. The project was assigned at the beginning of the instruction and students worked on short exercises and parts of the project as they proceeded through the course (Knoll, 1997; Richards, 1900).

The concept that projects could be used both as formative and summative experiences developed from these systems. Both forms, Richard's integrated approach and Woodward's capstone project, are still in use today. Many features of project instruction began with these two approaches, including the concepts of student-directed work, exhibitions, the use of criteria sheets or rubrics as evaluative tools and cooperative group work.

The project method eventually became the primary method of instruction used in vocational education. It was not as widely accepted in other areas of education possibly due to questions about its usefulness in broad context areas (Waks, 1997) and a concern that it would be less effective at preparing students to meet specific academic goals and college entrance requirements (Tate, 1936; Tyack & Cuban, 1995). In the Soviet Union, the project method had been initially heavily promoted by the state and was championed by Lenin's wife, Nadezhda Krupskaya (Knoll, 1997). It fell from favor as the political climate changed and did not regain its former popularity (Mchitarjan, 2000).

Ironically, although political tides virtually erased the project method in the Soviet Union, political pressure in the United States would revise it. In the past 20 years, interest in projects has increased due to an emphasis on authentic experiences in education. In contrast to its first incarnation, the project approach is considered an effective instructional method when used in tandem with other methods rather than as a single method to support the curriculum (Kratz & Chard, 1989). In the United States, the project method has been successfully integrated into a variety of areas such as literature (Miall, 1999), technology based learning environments (Page, 2006), and elementary education (Wolk, 1994). As the emphasis on authentic assessment increased, these methods were recommended as assessment methods. (Bickel, 1994; Ediger, 1999). In the field of engineering, capstone projects are commonly used as a summary assessment experience for engineering students and these projects integrate all engineering related subjects into the development of a prototype or feasibility study (Dutson, Todd, Magleby, & Sorensen, 1997).

Initially, Kilpatrick (1918, p. 320) defined the project method by the purpose that drove the activity. In his view any activity that the student committed to with a "whole-hearted purpose" could be consider a project. Projects were to be selected and completed by the student under teacher guidance rather than teacher direction. John Dewey objected to this emphasis on student directed instruction because he believed that the student lacked the maturity and experience to plan effective projects without the direction of the teacher (Knoll, 1997). This is still a concern of many instructors who are uncertain how to develop a student centered learning environment.

This view of the teacher and student relationship as a partnership encouraged the development of specific guidelines for project assignments to clarify the mechanics of the method. Kilpatrick described a project as the embodiment of a plan, a problem solution, the enjoyment of an aesthetic experience, or the obtainment of a skill (Sexton, 1990). This description was considered to be so broad that nearly every type of purposeful activity could be considered a project and this was a commonly recognized fault in Kilpatrick's conception.

As the concept of student directed learning received serious examination, educators began developing specific criteria for project based instruction. Hosic (1918) outlined the basic elements: provide a problem or situation, develop a purpose to solve the problem with the end result in view, conceive and execute the plan of action, and judge the results. Roark (1925) described the project method as containing five subparts: a problem, the use of material objects, questioning techniques to help the project progress, a requirement for student research, and the final use of the teacher as a resource if the student encounters a difficulty that he is unable to solve independently.

It is noteworthy that at this early date, the project method already had elements of the problem based instructional methods that would develop in the late 20th Century. Project based instruction often has a problem embedded into the project design but it differs from problem based learning in that the end result of the project is known at the beginning of the project. A project based problem results in a specific artifact; a problem based experience may result in a variety of expected solutions. Consider the following examples:

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