Changing Classroom Practice to Include the Project Approach

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Abstract

Project work involves content, products, and processes. Teacher educators may notice that those new to project work adopt ideas and practices related to content and products more readily than they adopt ideas and practices related to the processes embedded in good project work. To fully implement the Project Approach, teachers need to develop an understanding of the underlying dynamics of the processes of project work. The first part of this article defines projects, provides a brief history of the Project Approach, and discusses some benefits of the approach. It then goes on to discuss challenges to implementing the Project Approach, the teacher's role in project work, and processes of the Project Approach. The first part of the article describes how teachers begin to experience a change in their practices as they come to better comprehend the underlying dynamics of the processes that constitute good project work. The second part of the article points to some of the research on teacher learning that may account for the difficulties with this change.

Introduction

To fully implement the Project Approach, teachers need to develop an understanding of the underlying dynamics of the processes of project work. The processes intrinsic to the Project Approach are realized when the teacher begins to encourage children to (1) develop their own questions about the topic under investigation, (2) make predictions about possible answers, (3) think of ways to test their hypotheses, (4) negotiate with the teacher various ways they might represent their findings, and (5) take time to solve their own problems through trial and error. However, teacher educators who work with teachers new to the Project Approach frequently report that these processes are difficult for the novice to grasp.

This article is presented in two parts. The first part defines the Project Approach, provides a brief history of the approach, and lists some benefits of project work. It also discusses some challenges to understanding the teacher's role in the Project Approach. The article then describes how teachers begin to experience a change in their practices as they come to better comprehend the underlying dynamics of the processes that constitute good project work. The second part of the article points to some of the research on the obstacles to teachers changing their practices. The research suggests that teacher educators focus on strengthening certain teacher dispositions that are part of good project work.

Toward Understanding the Project Approach

Definition and Brief History

A project is an in-depth investigation by children of a topic that is worthy of their time, attention, and energy (Katz, 1994b). A project involves three phases. During the first phase, children and their teacher select and discuss a topic to be explored. In the second phase, the children conduct firsthand investigations and then create representations of their findings. The third phase includes culminating and debriefing events (Katz, 1994b). The approach is based in part on the work of the American educator and philosopher John Dewey (1859-1952), who maintained that education is the reconstruction of experience (Dewey, 1916/1966).

Dewey, along with his wife and several teachers, developed the approach over a period of seven years (1896 to 1903) at his laboratory school at the University of Chicago. Dewey challenged the view current at the time that knowledge was a fixed notion of truth waiting to be discovered. Learning had been viewed as a possession—a matter of class—that was a necessary and

practical result of social standing. For Dewey (1910/1991), "knowledge is not absolute, immutable, and eternal, but rather relative to the developmental interaction of man with his world as problems arise to present themselves for solution" (p. viii). Dewey's notions of learning grew out of the basic tenets of the newly evolved pragmatic theory of knowledge. When Dewey moved to Columbia University, his colleague William Kilpatrick popularized the approach as the Project Method (Kilpatrick, 1922).

Katz and Chard (1993) "refer to the practices ... as the project 'approach' rather than 'method' or 'model' to indicate that it is one important element of an early childhood curriculum" (p. 209). They propose the Project Approach, based on Dewey's ideas, as a way of working with children so that they might come to deeper understandings of the world they inhabit:

> Including project work in the curriculum promotes children's intellectual development by engaging their minds in observation and investigation of selected aspects of their experience and environment. (Katz & Chard, 2000, p. 2)

In addition to the three phases of a project, there are three components to consider when undertaking project work: (1) content, (2) processes, and (3) products. In project work, teachers usually change the *content* of their instruction to include real-world topics and have children undertake new kinds of representations (*products*) of the information they have obtained. However, teacher educators frequently report that teachers and student teachers new to project work still use the same pedagogical methods (*processes*) of systematic, direct instruction that they have always used. Perhaps this reluctance to change reflects a lack of clear understanding of project work.

Some Benefits of Projects

Teachers who wish to offer their children meaningful opportunities to apply the skills and knowledge they acquire through direct instruction may choose to incorporate project work into the curriculum. As children make careful observations and inquiries through their project work, they are likely to have a reason to use literacy and numeracy symbols to represent and communicate to others what they are learning about their topics. As Dewey (1916/1966) explains, much of our thinking is stored in symbols. It is reasonable to assume that what each child chooses to communicate to others is meaningful to her or him. In this way, the Project Approach can serve as a useful and meaningful complement to a more typical, systematic, or direct form of instruction.

A further advantage of the Project Approach lies in the context it offers for children to develop desirable dispositions—or habits of mind—toward learning, toward themselves, and toward others (Katz, personal communication, August 5, 2000). Based on her reflection on the projects that transpire in the preschools of Reggio Emilia, Italy, Katz (1994a) asserts that we can see in children's work clear evidence that

1. all young children have active and lively minds from the start;
2. the basic dispositions to make sense of experience, investigate it, care about others, relate to them, and adapt to their physical and cultural environment are dispositions within children from the start; and
3. these in-born dispositions can flourish, deepen, and strengthen under the right conditions. (p. 8)

If orchestrated correctly, the Project Approach has the potential to provide children with the right conditions under which to develop these dispositions. We can conclude from research (Marcon, 1992) that these dispositions may be damaged at an early age if children are overly drilled in skills with academic instruction and not given many opportunities to develop their investigative

dispositions.

Some Challenges to Implementing the Project Approach

Unlike more traditional models of direct instruction, which may suggest a teacher's script, or offer a list of activities and worksheets for a typical plan-teach-review-test format, there is "no single way to incorporate project work into a curriculum or teaching style" (Katz & Chard, 2000, p. 3). It is up to each teacher to decide how much of the school day will be devoted to project work and how it best fits into the context of classroom constraints and the teacher's preferences.

Katz and Chard (2000) explain, "for many teachers, the Project Approach can seem to be a complex way to teach" (p. 162). From their communications with teachers who have attempted to implement the approach they conclude:

> Projects are easier for some teachers to implement than for others for a variety of reasons. These individual differences may be related to teachers' prior teaching philosophies, practices, and experiences, or to institutional, collegial, or administrative contexts in which they work. (p. 162)

Furthermore, even though project work is organized around a three-phase structure of investigation, representation, and culmination, there are no specific directions to use such as a teacher's manual or a guide for writing lesson plans. If a teacher uses the language associated with the typical lesson plan required for teacher-generated activities, this practice may serve as an indication that she has not yet developed a full understanding of the processes involved in project work.

Chard (1999) comments on the differences in planning for thematic instruction and project work:

> The preliminary planning that accompanies much successful project work involves the preparation of the mind of the teacher for the possibilities that could arise from the children's study of the topic. It is not the kind of objectives-driven planning that characterizes much direct instruction, where the objectives can be operationalized and prespecified in considerable detail. Instead, planning for project work involves the imaginative anticipation of the prior experience level of interest that might reasonably be expected from a given class of children. (p. 3)

For teachers new to the Project Approach, thinking about how to plan for a project to unfold may seem difficult. The role of the teacher can appear to be obscure to the novice. Not only must the teacher become an imaginative anticipator of the work to be accomplished, but she must also learn to become a facilitator of the understandings to be gained by the children.

More-experienced practitioners know how to foster children's dispositions to wonder and ask questions, how to nurture children's dispositions to take initiative in planning and carrying out inquiries, and how to negotiate with children so that each child takes responsibility for what she or he does and learns. However, learning how to conduct this type of project work is a developmental process for both the teacher and the children. The teacher must find ways to encourage the children to become independent workers by having them decide what they will attempt to accomplish each day during the time set aside for project work. The teacher also must plan for where her assistance is most needed for the day. For example, a kindergarten teacher new to project work comments:

> I am talking to my students about my limited ability to work with each group and give help at the same time. They are getting better with this task. I think that I could do a little more "planning" to help. I will work on this. (Beverly Hart, personal communication, November 15, 2004)

Teachers with more experience with using the Project Approach typically report that projects take

on a life of their own. Perhaps this is a sign that they have come to respect the children's interests, motivation, and curiosity—that they recognize the value of engagement for children's learning. Perhaps this is a testament to their skillfulness in guiding children through meaningful investigations and representations during the course of the project. Certainly, skillful guidance on the part of the teacher indicates a deeper understanding of the dynamic processes involved in good project work. However, how does a teacher learn how to conduct this kind of good project work?

The Teacher's Role in Project Work

As part of project work, a teacher may have children conduct investigations; invite experts to visit the classroom; do drawings from memory and observation; and construct pictographs, Venn diagrams, and flow charts to represent their findings. Children may construct houses, paint large cardboard buses, or produce puppet shows for culminations. These processes vary somewhat according to the ages of the children involved. However, even though the products and the content may be exemplary, the teacher may not yet understand the complex nature of the dynamics involved in the processes of doing exemplary project work. The ideas for the topics, the investigations, and the representations may all come from the teacher, rather than the children. Again, the novice kindergarten teacher comments:

> Progression of my project is going well. I do see the value of students working together, and do try to encourage this process at all times. (It has been an eye opener to see how hard this task is for children of kindergarten age.) I just want to be careful not to put ideas into their heads, resulting in everyone working on the same thing at the same time. From my perspective, one of the strengths of using the Project Approach is that students have the opportunity to explore concepts more independently than they would have with teacher-directed activities. Ironically, this aspect has been the most difficult part of the project to manage and facilitate. (Beverly Hart, personal communication, October 26, 2004)

Teachers new to project work often do not recognize that project work offers children opportunities to explore concepts independently and follow their own interests, fueled by their natural curiosity and motivation. Instead, teachers may adopt new content to reflect a study of something in their environment, but the children's work is often teacher-directed so that the products are adult-like in nature.

In the first class to whom I taught the Project Approach, one teacher's experience demonstrated this lack of recognition. Because she had access to owl pellets for the children to dissect, *she* decided that her kindergarten class would study birds. She determined her "bird groups" by who could best work together, rather than by the children's particular interests. Then she had the children vote on five birds that they wanted to study more closely, making sure that one group would study owls. Each group was to make a facsimile of the bird that they were studying (cardinal, penguin, owl, hummingbird, eagle). Their assignment was to look at a picture of the bird and tell the teacher what they needed in order to make it. For example, for the model of the cardinal, the children indicated that they needed red feathers, so the teacher purchased some for them. Even though the children each took part in the construction of the models of birds completed for culmination, which were beautiful, they were not child-like creations! Other parts of the project (e.g., topic webs, personal stories, memory and observational drawings) were completed very well by her children.

As this teacher reported her experience, I realized that I had not been able to communicate to my student that the processes of doing project work vary significantly from those of direct instruction.

Teachers who are able to facilitate investigations and representations that come from children's

thinking and ideas have more fully developed their understandings of a central construct of the processes involved in project work. Here a teacher with more experience in using the Project Approach speaks to the issue:

> Do you realize how hard it is to teach without telling them the answers? Project work makes you think, because you have to keep thinking to keep from giving them the answers! (Dot Schuler, personal communication, May 5, 1998)

A deeper understanding of what Ms. Schuler meant by the frustration of not giving her children the answers came to me on a day long ago when I was learning about the Project Approach. When I visited her second-grade classroom, Ms. Schuler asked me to assist the children in the language arts center. The assignment for the children was to write questions about what they wanted to study on their new topic of soil. My job was to make sure they used the correct spelling and punctuation. The first girl to arrive at the center said, "I think I want to learn about worms." Having completed many teacher-directed units on earthworms, I immediately thought of countless facts—they have no eyes, two hearts, both sex organs, two pairs of extendable bristles on each segment that enable them to crawl, etc. Because I did not yet understand that the processes of projects were different from those of teacher-directed units, I blurted out, "Did you know that...?" I got exactly that far when my young charge taught me a valuable lesson about the processes of good project work by saying, "Oh, *please*don't tell me! I want to find out for myself!"

Schuler's remark, cited above, and that of her student can be seen as defining, in part, their views of the teacher's role as someone who uses the Project Approach to facilitate and support learning. Their remarks may represent a core insight that a teacher's role can vary from that of an instructor of skills and transmitter of knowledge to a facilitator of children's coming to increasingly deep understandings of what they are investigating. However, what does that mean and how does one do that? If teachers don't plan, transmit information and knowledge, and test, then what do they do? How does one transform one's role from *instructor*to *facilitator?*

Processes of the Project Approach

The dynamic processes intrinsic to the implementation of the Project Approach are realized when the teacher begins to encourage children to (1) develop their own questions about the topic under investigation, (2) make predictions about possible answers, (3) think of ways to test their hypotheses, (4) negotiate with the teacher various ways they might represent their findings, and (5) take time to solve their own problems through trial and error. These processes are well illustrated by Yvonne Kogan's project titled "A Study of Bones" athttp://ecrp.illinois.edu/v5n1/kogan.html.

This project was carried out by bilingual kindergarten children in Mexico City under the guidance of Ivette Alkón, their teacher, and Yvonne Kogan, principal of the school's Early Childhood Department. One part of the bone study was an investigation of an X-ray machine. Prior to visiting the hospital, the children predicted how long the machine would be. They estimated how many children standing in a line would be needed to measure the length of the table. One child predicted 100 children. She realized when she saw that it only required nine children that her answer was "silly." The children were allowed to linger around the machine while they watched one of their classmates lie down on the table and have a mock X-ray taken. Photographs were taken of the machine and the children's experience while they completed detailed observational drawings, asked questions of the doctor, and took field notes. When the children returned to school, the pictures and accompanying dialogue were displayed as documentation of the field experience. The children in the X-ray machine group made a list of what they needed to reproduce the machine in their classroom. They planned who would complete what task according to their individual interests. One child negotiated with the teacher the length of the table for the classroom representation of the machine after referring to the picture. The children

in the group continued to solve many problems as they constructed an amazing facsimile of the X-ray machine.

While learning to implement the Project Approach, it seems reasonable to assume that teachers may begin to realize the consequences of transforming their practices from instructor to facilitator of learning. As Ms. Kogan (2003) stated:

> Throughout the Bone Project, the kindergarten children were able to apply basic skills to solve real-life problems. They not only touched upon the requirements for their age and grade level, they surpassed our expectations of the knowledge they gained and the skills they acquired.
>
> This project made a difference at our school because the children's self-motivation, excitement, interest, willingness to work hard, and their display of creativity and problem-solving abilities amazed other teachers who were reluctant to try project work.

It is attention to the underlying, dynamic processes as children wonder, imagine, ask questions, evaluate answers, make predictions, compare predictions to findings, and then apply findings to create representations, rather than attention to the more superficial oriented details of content and products, that engage the minds of children in the context of an in-depth study of a topic (Katz & Chard, 2000).

The first part of this article argued that to fully implement the Project Approach, it is necessary for teachers to develop an understanding of the underlying dynamics of the processes of project work. When teachers begin to experience a change in their basic understandings of the effects of their practices from a traditional, transmission approach to teaching toward a progressive approach of facilitating learning, they can begin to fully appreciate these processes (e.g., having students make predictions; negotiating with students). The second part of the article reviews research related to teacher learning that may account for the difficulties experienced by teacher educators when helping teachers change their practices to include the processes of project work.

Changing Pedagogical Knowledge and Understandings

Extensive experience in helping teachers who wish to adopt the Project Approach suggests that even with a desire and intention to change practices to include the approach, many teachers continue to use traditional formal instruction. What are some possible explanations for this pedagogical choice, even though it is contrary to that of the Project Approach? Research on teacher learning may yield some insights into this phenomenon.

The Traditional Approach to Teaching

The traditional approach to teaching is based on the concept of a transmission model of instruction in which basic skills and facts are taught through direct instruction. In this approach, knowledge is transferred from the expert to the novice primarily through lecture or print. In addition to a description of Borko and Putnam's three domains of teacher knowledge and the transmission model of instruction, the discussion below includes the concepts of (1) the strength of the effects of preexisting understandings while attempting to change practices, (2) the notion of false clarity, and (3) the resistance to change in beliefs about practice.

Three Domains of Teacher Knowledge. Borko and Putnam (1996) organize their investigation of research on learning to teach around "three domains of knowledge that are particularly relevant to teachers' instructional practices: (a) general pedagogical knowledge and beliefs, (b) subject matter knowledge and beliefs, and (c) pedagogical content knowledge" (p. 675).

The first domain forms the focus of this discussion. It encompasses a teacher's knowledge and understandings of teaching, learning, and learners that transcend particular subject matter

domains:

> It includes knowledge of various strategies and arrangements for effective classroom management, instructional strategies of conducting lessons and creating learning environments, and more fundamental knowledge and beliefs about learners, how they learn and how that learning can be fostered by teaching. (Borko & Putnam, 1996, p. 675)

The Transmission Model. Literature on teacher change and educational reform (Fullan, 1982; Borko & Putnam, 1996; Raths, 2001) points to the difficulties inherent in teachers' reflecting critically on their current (traditional) views of teaching and learning. Often their existing views are based on a transmission model of education in which pedagogy is based on traditional beliefs:

> Instructional theories are grounded in behaviorist and early information-processing perspectives, which assume that learning is facilitated by breaking complex tasks into component parts that can be taught and practiced in isolation.... Students acquire the component parts one by one, ultimately putting them together in complex performances [so that curricula consist] of discrete facts and skills removed from any meaningful context or sense of purpose. (Borko & Putnam, 1996, p. 674)

As Lortie (1975) explains, prospective teachers have experienced more than 10,000 hours of observation of teaching from their own experience as students, and most were within a traditional setting. These experiences form a perspective (filter) that determines how they interpret their experiences in teacher education programs. This filter is further developed in practice teaching and through inservice experiences.

Preexisting Beliefs. In a review of educational change, Fullan (1982) claims that inservice teachers often embrace newly recommended practices in terms of what they believe already works for them. He posits that because their preexisting beliefs, based on their direct experiences, serve as a filter to new information, they tend to adopt a hybrid form of the innovation that they are required to use in order to fit it into their present scheme of teaching. The teachers may assume that they are making the changes required because on the surface the *product* or *content* of the instruction conforms to the new mandate.

False Clarity. The *processes* of instruction, however, based on teachers' preexisting pedagogical knowledge and beliefs, may not change. Fullan (1982) refers to this phenomenon as *false clarity*. In these cases, the teachers do not understand that they don't understand the proposed changes. False clarity may then, in part, explain why some teachers new to the Project Approach might assume that they are doing a project, when in fact they have made changes in their content and products, without adopting the processes involved in doing projects.

Fullan (1982) discusses how changes of this nature involve the difficult process of the construction of new meanings that often run counter to the teacher's tacit knowledge and understandings about teaching and learning. He further emphasizes that for educational change to occur, change on this level of general pedagogical knowledge and beliefs in each individual teacher is necessary. However, he states that change on this level is difficult to achieve.

Resistance to Change. Furthermore, in reviewing the research on learning to teach, Borko and Putnam (1996) explain that these long-held pedagogical beliefs constitute a significant resistance to change at the preservice and inservice level:

> Just as cognitively oriented studies of learning have demonstrated the central role that students' existing conceptions play in determining how they interpret instruction and what they learn, research on learning to teach shows that teachers' existing knowledge and beliefs are critical in shaping what and how they learn from teacher education experiences. Just as many fundamental conceptions of students about

> science and mathematics are resistant to change through instruction, teachers' knowledge and beliefs about teaching and learning are difficult to change. (p. 674)

These long-held pedagogical beliefs (traditional approach) are likely to be resistant to change for teachers attempting to adopt the underlying dynamic processes of the Project Approach.

Operationalizing the New Processes

It is reasonable to assume that teachers new to the Project Approach may continue to use the customary processes of systematic, direct instruction (traditional pedagogy) to cover the content of the project and have children produce prescribed results. In such cases, the teachers' filters (from preexisting general pedagogical knowledge and beliefs) may prevent them from recognizing that there are other ways to offer opportunities for learning in their classrooms—some that are likely to develop their children's intellectual capabilities as well as foster their academic skills (Katz & Chard, 2000).

Changes in content covered or products expected in classroom curricula may occur more readily because they are easier for the teacher to see through direct observation. This may be due to what Fullan (1982) refers to above as *false clarity*. Furthermore, the strength of the teachers' preexisting pedagogical understandings may cause them to adopt a hybrid form of the approach (Fullan, 1982). Additionally, the change in thinking about teaching and learning for successful implementation of the processes intrinsic to project work may take some teachers longer than others. This delay may be due to the nature of the resistance to change of their tacit knowledge and beliefs (Borko & Putnam, 1996).

Some Suggestions for Change

Raths (2001) maintains that the literature on teacher change (Zeichner & Tabachnick, 1981; Bruner, 1996; Kennedy, 1997) implies that "teacher educators must uncover and change particular beliefs that hinder the efficacy of teacher education" (p. 9). He suggests that teacher educators focus their efforts on strengthening certain *dispositions* in teachers, rather than trying to alter their belief systems, which have been shown to be resistant to change.

For example, rather than working against the teacher's belief system and trying to change it, teacher educators may be able to transform practices by beginning to develop (or strengthen) certain dispositions (Katz & Raths, 1985). Raths (2001) suggests these might include:

1. Making setting attributions and not trait attributions
2. Making efforts to meet children's needs
3. Working to clarify children's ideas instead of judging them
4. Rewarding approximations

If these dispositions were encouraged and strengthened by teacher educators, the need to change beliefs might be less of a concern when helping others learn how to use the Project Approach effectively.

Conclusion

This article reviewed three of the components of the Project Approach: content, products, and processes. It included a discussion of the fact that sometimes teachers new to the approach appear to more easily adapt their practices by making changes in content and product, but they may struggle especially hard with changing the pedagogical processes they use. Literature for teacher educators on teacher change shows that traditional transmission practices are highly

resistant to change. Teachers may not appreciate the fact that they do not understand or that they misunderstand the processes involved in project work and thus may adopt a hybrid version of the approach. The article ends with a call for teacher educators to move away from the discourse of changing teacher beliefs toward one of strengthening dispositions that may facilitate good project work.

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