

# Active Learning and Modern Approaches to Education

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## Abstract

This paper concerns “active learning” and modern approaches to education from a constructivist point of view, because “the theoretical foundation of active learning is the constructivist approach” (Frank, 2008, p. 1). Constructivism is, according to Frank (2008), “a set of assumptions about learning that guide many learning theories and associated teaching methods.” Therefore, I will first look at some theorists whose ideas have structured constructivist theories as well as modern issues in school learning and suggested solutions. Later in this paper, I will discuss what these theorists’ assertions have in common and what is helpful to construct active learning. Finally, I will make three points in conclusion which may be important considerations to actually help pre- and in-service teachers in terms of modern educational approaches based on active learning.

**Key words:** Active learning, transfer, knowledge objects, situatedness

## 1. Introduction

Since 2012, when the Central Council for Education in Japan, a part of MEXT [Ministry of Education, Culture, Sports, Science and Technology], proposed the phrase “active learning,” Japanese education has put emphasis on the concept of “spontaneous, dialogic, and deep” learning within school. However, it seems that only the phrase “active learning” has attracted many people’s attention; indeed, it may have run ahead of us. Frank notes that “many elements of the active learning are derived

from principles of the constructivist approach" (2008, p. 1). Much of the literature on constructivism has developed the notion of community of practice, proposed by Lave and Wenger (1991), from several important points of view, which are certainly meaningful and promise to be helpful for us to figure out how we can build up actual "active learning" in school. In this paper, I would like to first look at some theorists whose ideas may help us overcome the problems of school learning such as students' passivity and discontinuity between school learning and real-world experience, and then consider some effective approaches based on those ideas.

## 2. Key Scholars and their Frameworks

Many educators are aware of approaches based on Vygotsky's ideas. In this section, I would like to discuss some problems in school learning with theoretical solutions put forward by Freire, Engeström, and Bereiter as well as Bruner who interprets Vygotskian theory for a modern audience.

### 2.1. Paulo Freire

Freire was a Brazilian educator and theorist who published *Pedagogy of the Oppressed* in 1968. During the economic depression of the 1930s, he gradually gained a perspective to think about the oppressed and the importance of education, which he thought would improve the situation. Regarding hierarchical society at that time, he invoked the "banking" concept to critique conventional education systems. In this metaphor, school learning was seen as a bank where "the teacher issues communiqués and makes deposits which the students patiently receive, memorize, and repeat" (Freire, 2003, p. 72). This problem is introduced as a "teacher-student contradiction." He claims that "education must begin with the solution of the teacher-student contradiction, by reconciling the poles of the contradiction so that both are simultaneously teachers and students" (Freire, 2003, pp. 72-73).

To move beyond that situation, he emphasized the importance of

dialogue. He explains that through dialogue, “the teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach” (Freire, 2003, p. 80). Because both teacher and students are humans, creatures incomplete in themselves who learn through social interaction, he believed mutual creation is possible only through mutual communication.

## 2.2. Jerome Bruner

One of the most famous notions in Vygotsky’s thought, known as sociocultural theory, is the Zone of Proximal Development (ZPD). The ZPD is defined as “the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). Arguing that learning is a social action, he explains that social interaction, conceptualized by later researchers as scaffolding, functions to lead learners to higher levels.

There is a large volume of published studies describing the role of the ZPD; however, Jerome Bruner has developed this theory by observing what happens to the participants in the zone.

Bruner is one of the most influential psychologists of the twentieth century (Seel, 2011). His main interests were human cognition and Vygotskian ideas of education. Analyzing the concept of ZPD, Bruner develops his understanding of what Vygotsky meant thus: “the tutor or the aiding peer serves the learner as a vicarious form of consciousness until such a time as the learner is able to master his own action through his own consciousness and control” (1985, p. 24). Therefore, scaffolding has the critical function of making children “internalize external knowledge and convert it into a tool for conscious control” (Bruner, 1985, p. 25).

Bruner also highlights the importance of highly framed or formatted situations, what he metaphorically calls “nanocosms,” in which an “adult maintains a very constant routine over time to which the child responds with increasing skill and decreasing variability” (1985, p. 27).

### 2.3. Yrjö Engeström

Resnick (1987) points out four main characteristics of contrasts between mental activity outside school and typical school work. One of them describes the issue of discontinuity between learning in school and cognition outside school. "The process of schooling seems to encourage the idea that the 'game of school' is to learn symbolic rules of various kinds, that there is not supposed to be much continuity between what one knows outside school and what one learns in school" (Resnick, 1987, p. 15). According to her much evidence has supported that not only is school learning isolated from outside school, knowledge available outside school is not always helpful in school (Resnick, 1987).

Engeström (1991) refers to this statement and calls this problem "encapsulation of school learning." Then he introduces solutions advanced by V. V. Davydov (as cited in Engeström, 1991), and Lave and Wenger (1991) followed by his own theory.

Davydovian theory is called the method of "ascending from the abstract to the concrete" (as cited in Engeström, 1991, p. 249). Davydov (as cited in Engeström, 1991) puts emphasis on a process in which school children identify the general relationship in curricular material and find it manifest in other relationships as well. This becomes a substantive abstraction used by children to deduce more particular abstractions and unite them in an integral academic subject. Children use the "kernel" of the academic subject in many factual materials (Davidov, 1988, as cited in Engeström, 1991). The theory is understood as an instrumentality for deduction. In other words, the encapsulation can be broken by letting students discover the "kernel" and use it to deduce, explain, predict, and master problems in their environment (Engeström, 1991).

Jean Lave and Etienne Wenger advance an alternative approach, claiming that "social practice is the primary, generative phenomenon, and learning is one of its characteristics" (1991, p. 34). They introduce three criteria to make learning, as participation in communities, particularly effective. First, there should be "broad access for participants to different parts of the activity" (Engeström, 1991, p. 252) and the core

task. Second, there should be abundant interaction between participants through activities. Third, “when the technologies and the structure of the community of practice are transparent, that is, their inner workings can become available for the learner’s inspection” (Engeström, 1991, p. 252). This approach is introduced as “legitimate peripheral participation.”

Engeström himself proposes a method of *learning by expanding*, arguing that learners should first of all have an opportunity to “analyze critically and systematically their current activity and its inner contradictions” (1991, p. 254). He calls it “the context of criticism.” He also claims that “the learners must have an opportunity to design and implement in practice a way out, a new model for their activity” (Engeström, 1991, p. 254). He explains that his approach, along with those of Lave and Wenger and of Davydov can be complementary modes of inquiry by students and teachers. “This would make the relationship between the context of criticism, the context of discovery, and the context of practical social application the new expanded object of learning” (Engeström, 1991, p. 255). The school institution should be “turned into a collective instrument for teams of students, teachers, and people living in the community” (Engeström, 1991, p. 256). In short, he suggests that the encapsulation can be broken by expanding the object of learning and transforming the learning activity itself (Engeström, 1991).

#### 2.4. Carl Bereiter

Since the 1950s, some researchers in psychological learning have emphasized the significant roles of situatedness or the environment. They claimed that organisms perceptually learn their surroundings and their cognition is also situated. Highlighting the striking changes in our society, where technologies and knowledge constantly create new ideas and further development, Bereiter (1997) investigates how people can overcome this situatedness and apply it to school education.

The problem of situatedness is, Bereiter (1997) says, that “what we learn in one situation we often fail to apply in another,” and “as learning proceeds it tends to become less and less generalizable to other situations”

(1997, *The Problem of Transfer*, ¶ 1). In other words, it is the problem of transfer. He claims that people should look for an abstract relationship “based on formal, structural, or logical correspondences” (Bereiter, 1997, *The Problem of Transfer*, ¶ 5).

He also describes our society today as a world in which humans have rapidly developed our environments by technological innovations, each of which, according to him, is an example of “transfer of intelligent behavior from one situation to another” (Bereiter, 1997, *The Problem of Transfer*, ¶ 3). The problem is that, although they are living in such a world, people today tend to learn situatedly. Regarding the technology in our society, Ataizi (2012) also provides an important consideration about a problem in our society: technologies today become the actual factors to support and create situated learning environments. Observing such a society, Bereiter (1997) warns that there may well be a future in which people struggle to catch up with the accelerating pace of change, except those who are capable of transfer, who bring such a rapid change.

### 3. Discussion

In this chapter I would like to investigate modern approaches by discussing what the theories have in common and how they can be applied to school learning. I would like to focus especially on dialogue, or interaction of some kind, and transferability.

#### 3.1. Dialogic and interactive approaches

First of all, there seems to be a general consensus that school learning should be a social interaction. Dialogue is surely one of the key elements in social constructivism. “Social constructivism suggests that learners learn concepts or construct meaning about ideas through their interaction with others, with their world, and through interpretations of that world by actively constructing meaning” (Frank, 2008, p. 2). Freire showed the importance of dialogue and mutual creation within a society. Fink’s (1999) model of active learning also suggests that “all learning activities involve

some kind of experience or some kind of dialogue" (p. 1).

Dialogic approaches are encouraged within a community of practice, proposed by Lave and Wenger (1991), and probably they work well in a ZPD context where learning occurs naturally while learners and tutors communicate their ideas. It seems that Freire's suggestion and Lave and Wenger's, as well as most researchers' statements on interactive activities, have much in common in terms of learners' learning situation where they are actively involved and encouraged by other participants.

Based on Bruner's (1985) analysis, such situations can be installed into school as highly framed or formatted activities. A main characteristic of such activities is that "the adults maintain a very constant routine over time to which the child responds with increasing skill and decreasing variability" (Bruner, 1985, p. 27). By providing the child with answers only when the problems are beyond the child's level, the adult can let the child access the adult's controlled consciousness and help the child stay in the zone. This is how Bruner thinks scaffolding works and, though his explanations seem to describe children's learning contexts, this may be what educators have to understand in order to avoid meaningless pair work and inanimate group activities.

Although Bereiter (1997) seems unsatisfied with learning that comes about solely through the social life of the community, he also admits the recent trend in sociocultural aspects of education. He analyzes that "progressive education sought to avoid inert knowledge by having learning come about naturally thorough the social life of the community" (Bereiter, 1997, *Schooling and Knowledge Work*, ¶ 11).

Most social constructivists may agree that modern approaches in school should follow the trend of teaching in dialogue, and activities based on mutual interactions and creations.

### 3.2. Transferability

School learning should provide students with opportunities to explore problems and tasks in themselves to figure out core principles and knowledge objects which can be useful in multiple situations. Knowledge

objects are defined by Bereiter as “theories (or theorylike conjectures, at any rate), interpretations, historical accounts, problem statements, defenses based on evidence, and so on” (1997, *Schooling and Knowledge Work*, ¶ 6). In school learning, such knowledge objects should be facilitated and also evaluated. The possible tasks aiming at producing and embodying them are reports and presentations, as introduced by Scardamalia and Bereiter (1994).

Problems discussed as encapsulation and situatedness explain very similar phenomena in school. They describe a problem of transfer. Engeström (1991) observes a concrete example in which students misunderstand a scientific phenomenon in school textbooks: how the moon changes its shape. Bereiter, on the other hand, points out a problem of transfer both in school and in the society. He argues that situated learning results in a society where capability of knowledge transfer produces bigger gaps between people. Both Engeström and Bereiter develop their arguments and suggest that school activities should promote students’ ability to transfer knowledge and skills to new contexts.

Davydovian theory also makes a statement to that effect by metaphorically calling the core “kernel” and puts emphasis on children’s abstraction and deduction based on it. Engeström (1991) introduces Lave and Wenger’s theory of legitimate peripheral participation and their idea that community of practice may work to overcome encapsulation. Engeström claims that students’ spontaneous and critical participation is important. Although each suggests solutions from quite different perspectives, each outlines how school syllabi, curriculum, activities and materials should be organized so as to tackle the discontinuity problem of school learning. Their focus remains on what facilitates students’ authentic learning.

Bereiter maintains that the school situation “can best be understood by striving to distinguish knowledge implicit in the process from knowledge that is the product of the process” (1997, *Schooling and Knowledge Work*, ¶ 4). Referring to constructivist ideas, he stresses the importance of collaborative knowledge building, which concerns “how



teachers and students conceive of what they are doing and the effect this has on efforts to do it better” (Bereiter, 1997, *Schooling and Knowledge Work*, ¶ 7). In a knowledge building context, “the classroom community works to produce knowledge — a collective product and not merely a summary report of what is in individual minds or a collection of outputs from group work” (Scardamalia & Bereiter, 1994, p. 270).

Bereiter (1997) also provides some reasons why such a knowledge building process works well. First, it improves students’ theories or other knowledge objects. Second, it is important to help students move along a developmental continuum which, Bereiter (1997) posits, begins with “unconscious learning in early childhood” and ends with “inquiry that is focused on the external world and finally to inquiry that is focused on World 3 [immaterial knowledge] objects as they [students] relate both to the external world and to one’s own purposes” (1997, *Schooling and Knowledge Work*, ¶ 9). Third, it involves students’ existing knowledge objects and naturally leads students into the world of immaterial knowledge objects (Bereiter, 1997). Fourth, “the most immediate and obvious use of knowledge objects is in creating new ones—in creating new understanding either of particular phenomena or of a class of phenomena” (Bereiter, 1997, *Schooling and Knowledge Work*, ¶ 11), and which can effectively avoid inert knowledge. Fifth, “knowledge building is not in competition with instruction” (Bereiter, 1997, *Schooling and Knowledge Work*, ¶ 12). Bereiter (1997) explains that it is acceptable to precede knowledge building activities with a period of focused didactic instruction to impart the necessary basic knowledge in an efficient way. Sixth, it naturally involves related people outside such as scientists, librarians, and experts in different professions (Bereiter, 1997). Seventh, students can produce very basic and general knowledge objects which may work broadly to overcome situated cognition (Bereiter, 1997). Lastly, the situated learning in this context helps students work in a community of practice which deals with knowledge objects (Bereiter, 1997). Bereiter (1997) notes that this last point may lead to a knowledge-based society where workers create knowledge or add value to it.

In terms of situatedness, all learning activities seem to be situated. However, as we distinguish knowledge that can be used to create new ones from situated knowledge that sticks to a certain situation, we may be able to overcome the problem. Also, as is discussed by Engeström (1991), there seem to be several ways to consider how school education can prevent students from just remembering encapsulated knowledge.

#### **4. Conclusion**

The problem of active learning in school has been hotly debated for years. In this paper, therefore, I focused on important scholars and their basic theories that may work in modern education as well as against common issue found in current school learning so to figure out what active learning should really be like.

While Freire (2003) points out the passivity of students and stresses the importance of mutual creation based on dialogue, Lave and Wenger (1991) also appreciate social aspects of learning. Bruner (1985), based on Vygotsky's (1978) Zone of Proximal Development theory, emphasizes the importance of a co-working framework using the nanocosms introduced earlier by explaining the mechanism of learners' consciousness while learning. Engeström (1991) as well as Bereiter (1997) pick up the issue of discontinuity between school learning and experience outside school: encapsulation and situatedness. To overcome this problem, Davidov (as cited in Engeström, 1991) and Bereiter (1997) focus on the importance of transfer. On the other hand, Lave and Wenger (1991) and Engeström (1991) focus on the learning structure from different perspectives and suggest learners' legitimate peripheral participation and learners' critical participation respectively.

As a result, based on research and theories developed in the discussion, I would like to conclude that the following elements may well play a very important role in modern approaches in school as active learning.

- a. Spontaneous learning should be encouraged by mutual interaction in a carefully designed community of practice.
- b. School curricula should be organized to let children critically involve themselves in the problems and discover meanings in it that connect what they learn in school to what they experience outside school.
- c. School should be a place where children practice building their knowledge objects that support their future work and enable them to adapt to the knowledge-based society.

Although these elements are probably not a complete description of active learning, understanding such basic theories and frameworks is likely to be important for pre- and in-service teachers.

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