

PIAGETİNİN TEORİSİ VE EĞİTİMDEKİ UYGULAMALARI PIAGET'S THEORY AND ITS EDUCATIONAL IMPLICATIONS

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Özet

Bu çalışmada, Piaget'nin teorisi ve bu teorinin eğitimdeki uygulamaları değerlendirilmeye çalışılmıştır. Literatür taraması sonucunda, eğitim alanında geçerli olan Piaget'nin görüşlerine karşıt bazı tartışmaların olduğu görülmektedir. Bununla birlikte, Piaget kuramının eğitim programlarında pek çok olumlu etkiye sahip olduğu görülmektedir. Piaget teorisinin eğitim uygulamalarında "çok olumsuz" bir şekilde ele alınması, Piaget kuramı üzerine çalışma yapan araştırmacıların, eğitimde bu kuramı daha yararlı bir şekilde ortaya koyabilecekleri çalışmalara yönelik güdüleyici bir etki yaratabilir.

Abstract

In this work, an attempt is made to assess Piaget's theory and its educational implications. A review of the assess literature reveals a number of arguments against Piagetian approaches in the field of education. It is, however, accepted that Piaget's theory has many positive effects on educational programmes. The suggestion that Piaget's theory is "bleakly negative" in education can only provoke Piagetian researchers to investigate and display other workable and much more beneficial aspects of Piaget's theory for educational practice.

Introduction

Over the past few decades, child development studies have been interested in and influenced by Jean Piaget's theory. It is obvious that education for development is not a new issue. John Dewey initiated it in the United States, and in the last decade it has become popular through Piaget's works and contributions. Kohlberg and DeVries (1987) advocate that "the cognitive development is a convergence of Piaget's constructivism and Dewey's progressivism".

As is well known, Piaget's theory is concerned with the development of cognition. Cognition refers to knowledge and thought. In other words, it is concerned with the process associated with the acquisition, organization, retention and use of knowledge (Gross, 1988). Piaget studied how children construct knowledge of the world and how they use it. As Ault (1983) indicates, Piaget's theory is a complex theory, and Magoon (1977) points out that "the development of the fields of cognitive psychology and sociology is not clearly understood by most educational researchers." However, the people who are concerned with education seem to have a major interest in Piaget's theory, though it is not easy to make a clear connection between his theory and its educational implications (Turner, 1987). Bryant (1984) argues that, though there are interesting points for educationalists in his theory, Piaget's attention to the educational questions was very little. Peter Bryant is one of the leading British psychologists who has taken up Piaget's ideas. However, he has modified some crucial points: The differences between Piaget and

Bryant can be seen in the ways they design their experiments. Piaget made in-depth clinical studies with individual children, whereas Bryant worked on experimental and control groups, which is part of the scientific tradition for investigation into problems (Sutherland, 1992). Smith (1985) believes that "Peter Bryant has produced many good arguments, and the psychological assessment of Piaget's theory would certainly be handicapped without his contribution". Leslie Smith, who focused on Peter Bryant's review on Piaget's theory and some of its educational implications suggests that

Specifically, the central contention is that whilst Piaget's work does have some relevance to education, that work is Bleakly Negative in its educational implications.

In this work, an attempt will be made to assess Leslie Smith's above-mentioned contention. Actually, Smith (1985) makes five critical points, which will be mentioned later, to support her idea. Each of these points is discussed by her on the basis of his works and in-depth analyses. As far as the limits of this essay are concerned, it seems irrelevant to focus on each of his critical points since every criticism requires broad elaboration and in-depth analysis in relation, also, with Bryant's (1984) work. Therefore, in this article, the question as to whether Piaget's theory is 'bleakly negative' in its educational implications or not, is evaluated, first, by reviewing, very briefly, Piaget's

theory in general and, second, by focusing on the educational practice of his theory in particular.

Piaget's Theory And Its Educational Implications

Vygotsky made the first criticism of Piaget's theory in the 1920's. This was followed by Bruner in the 1960's. Criticism of Piaget became a very popular subject in the 1980's (Sutherland, 1992). The major reason for this continuous criticism of Piaget's theory is that his theory is not a theory of educational practice and that it does not involve all aspects of development. Therefore, Piaget should not be accepted as an educator, although he showed some general interest in education in his works (DeVries and Kohlberg, 1987).

In general, Piaget's theory is concerned with the development of intelligence. Ault (1983) summarizes Piaget's theory as follow:

Intelligence has two basic aspects. One of them is a "functional" aspect, i.e., how the cognitive system works. The other one is a "structural" aspect, which is the knowledge the system produces. Piaget pointed out that "one cannot understand his theory unless its biological basis is examined first" (Ault, 1983), since he used two functions from biology, which are "organization" and "adaptation". Neither organization nor adaptation can be observed but only inferred from a person's activity.

Organization: Piaget considered organization as a mechanism of cognition since it is, according to him, based on biological principles. It refers to the tendencies of new behaviours or thoughts to become clustered into systems of related behaviour or thought rather than to remain as isolated units.

Adaptation: This is the second biological mechanism. There are two processes in this mechanism; assimilation and accommodation. Assimilation is the process of incorporating new pieces of information into the old ways of thinking and behaving. Adaptation is to accommodate the object's unique features. Accommodation involves the modification of some elements in the old ways of thinking and behaving, or the learning of new ways.

Piaget proposes that assimilation and accommodation occur simultaneously whenever the child adapts himself to an environmental stimulus. Children learn new behaviours by imitating others. They accommodate themselves to the behaviours which they see in adults.

The structural aspect is concerned with the system of knowledge. Children construct their outside actions in an interaction with the environment. It happens first physically and then mentally. "Scheme" and "operation" are the forms of this aspect. A scheme is an organized pattern of behaviour. All humans are engaged in behaviour patterns or habits which are parts of their daily routine.

To sum up, Piaget's theory accounts for cognitive development in terms of the development of structures, from the schemes of the infant to the schemes plus operations of the adult. In his theory, Piaget argued that this cognitive development occurred in four major time divisions. These divisions, which are called stages or periods, are respectively "sensory-motor" (birth-1,5;2 age), "preoperational" (1,5;2-6;7 ages), "concrete operational" (6;7-11;12 ages) and "formal operational" (11;12-adulthood) (Ault,1983). According to Piaget's definition, a child has to follow these stages and periods in sequence without skipping any one of them (Sutherland, 1992). This is an expectation from each child, it sounds like a law of development for each child.

Learning is a complex interaction between maturation and experience in the Piagetian sense. From this point, children's maturational levels seem to be considered in order to give them effective education (Gross,1985).

In Piaget's thought, the types of basic learning can be seen as follows:

Associative learning, which is also called a static type of learning, is about the physical properties of things in the environment. The other type involves the discovery of relationships that exist in one's world. In the light of Piaget's definition, the learner must be actively involved in the elements in the world. This issue can bring about an educational question particularly with regard to traditional classroom settings. Therefore, the role of students as receivers and of teachers as lecturers were anathema to Piaget (Ault, 1983; Gross,1985). At this point, it can be said that the relation between Piaget's theory and educational practice does not seem very clear. For teachers do not seem to have a salient role in the Piagetian approach to education. DeVries and Kohlberg (1987) also support the idea by pointing out that "the connection between Piaget's theory and educational practice is far from clear".

Ault (1983) indicates three major reasons for this lack of clarity:

1. Piaget studied laws of development which would have universal application; however, traditional American education, in contrast, is concerned with individual differences, not universality.
2. Piaget was not concerned directly with education. He focused on the development of knowledge, not the acquisition of skills and factual information.
3. The cognitive competencies associated with each stage are not fully specified. The method for recognizing when a child is 'cognitively active' is unknown. Hence, the theory still has major ambiguities.

The different English translations of Piaget's theory also seem to create a certain degree of obscurity. Smith (1981) argues that Piaget is mistranslated and shows many ambiguous examples which are translated from French to English. On the other hand DeVries and Kohlberg (1987) indicate three different Piagetian educational approaches which are derived from different translations. They advocate that each translation of Piaget's theory into educational terms causes problems in educational practice. DeVries and Kohlberg (1987) describe three different types of translations as "global", "literal" and "free" translations. Global translation is a general summary, lacking the detail necessary for the precise meaning. Literal translation is a word by word interpretation. This one ignores the context and fails to take into account word combinations having idiomatic meaning; it seems to make little sense. Free translation, on the other hand, respects idiomatic meaning and focuses on precise ideas rather than individual words. These three different translations may present misunderstandings - even if they have the same educational goal in practice.

Ault (1983) argues that, despite the obscurity and problems of educational practice in Piaget's theory, the educator still uses the theory descriptively and by adapting Piaget's terminology in order to explain children's educational difficulties. Therefore, the goals and methods of education seem to be compatible with Piaget's theory. DeVries and Kohlberg (1987) initially accept its practical limitations, since, in child development, research and theory cannot be translated directly into child-rearing and teaching principles. However, they believe that developmental psychology can still be useful for educational practitioners.

The various schools of cognitive development apply two basic approaches in their application to teaching. The behaviourists and information processors imply a teacher-centred program, based on individualised learning. And, as far as the Piagetians and constructivists are concerned, the child-centred approach appears to be quite practical (Sutherland, 1992), because Piaget asserted that cognitive development is an interaction between the results of the maturation of an organism and its environment. Interaction draws attention to the fact that the organism has an active relationship with the environment (Turner, 1975).

Sutherland (1992) points out that constructivism starts where the child's concept and learning strategies emerge. The child constructs his own unique set of concepts in order to cope with and explain the world he lives in. In this sense, one responsibility of the teacher seems to be to know the conceptual level of each child in the class. However, as Piaget outlined a universal

pattern of cognitive growth all children pass through, his ideas are reconcilable with those of the constructivists, since both emphasize the importance of practical experiences for each child's learning.

There is an opposition from Bruner to Piaget's idea about environmental factors. Bruner criticised Piaget's ignorance of the child's previous experiences and insightful teaching (Sutherland, 1992). In Bruner's view, children need to be challenged to reach as high a level of academic performance as possible. Related to this argument, Sutherland (1992) outlines the practical issue with the question "Should we try to accelerate children's development as Bruner argues or should we wait for them to be ready as Piaget implied?". It does not seem easy to find an answer to this question, which could be another essay topic. However, it exemplifies the difficulties of taking Piaget's theory into the setting of education.

According to Ault (1983), on the other hand, Piaget's theory appears compatible with open education, discovery learning and Montessori's method, for they all focus on the self-initiated activity of the learner. Ault (1983) refers to Good and Brophy's work on the compatibility of Piaget's theory with discovery learning only, however, in upper elementary and high school levels. It is believed that discovery learning encourages children to act mentally and physically on objects in order to discover their properties and the relationships between them. It can be appropriate for children in the concrete and formal operational periods, who correspond to upper elementary and high school grades.

As far as Montessori's method is concerned, the pre-operational period is relevant to it. Montessori advocates, as Piaget does, that education is active and uses concrete materials. The pre-operational period is generally physical rather than verbal. Therefore, it is suggested that children need opportunities to interact with materials physically. For example, to learn about numbers, children need objects to count. In this sense, Piaget's theory can be used in practical ways by pre-school teachers in the area of physical knowledge. However, Piaget argued that the Montessori materials, used alone were too structured and too focused on sensory learning. The other compatible points between Piaget and the Montessori school are "repetition" and "imitation", which are the two important aspects of learning (Ault, 1983; Kamii and DeVries, 1978; Sutherland, 1992).

Gross (1985) points out that cognitive research can provide a useful source of information about the skill deficit of mentally handicapped children. According to him, this approach can be used both to identify children and to provide a guide to remediation. Gross (1985) also advocates that Piagetian theory can provide a useful guide to curriculum construction.

Kamii and DeVries (1978) argue that Piaget's constructivism does not imply a cookbook curriculum. In other words, it cannot be used for all children in the same way. At this point, the teacher's role becomes a salient aspect of educational practice since children share basic similarities, and constructivists imply that the teacher must respond to the child's unique ideas in a flexible way. They show how the teacher can invent their own activities. According to DeVries and Kohlberg (1987), in Piagetian principles, a teacher must be an evaluator, organiser, stimulator and collaborator. Bryant (1984), however argues that Piaget's message is "negative" and that teachers play an insignificant role in children's cognitive development, on the grounds that teachers talk to children and spend a lot of time telling them how to do things. In one way or another, a teacher's work is based on the idea that someone, with knowledge and skills can transmit them to others who have them to a lesser degree or not at all. Yet, in Piaget's view, this sort of activity had virtually nothing to do with children's intellectual development. However, when Kohlberg and DeVries (1987) focus on the active method in the light of Piaget's theory, the teacher seems to have crucial role in practical terms. The active method involves encouragement of children's interests, play, experimentation and cooperation. In this sense, the teacher seems to be concerned not only with materials and intervention, but also with the psychological dynamics of adult-child relationships. Kohlberg and DeVries (1987) state that, "for Piaget, a vital part of the teacher's role is to foster co-operative peer interaction".

Another positive view of Piaget's theory comes from Gross (1985) on "sequencing". According to him, good education involves sequencing and Piaget's theory emphasizes the importance of sequencing instruction. In the Piagetian approach, learning sequences conserve the basic developmental order. For example, as far as reading is concerned, a number of activities are necessary. Initially, a concept of letters must be developed. From the Piagetian perspective, the internalization of the concept of letters is facilitated by active learning. Activity may involve eye movement, tracking letters with fingers or tracking letter patterns with the body or writing.

So far, it can be seen that one may meet both negative and positive comments, together with some unclear points, on Piaget's theory in terms of its educational implications. It is also possible to derive different interpretations from Piaget's theory.

DeVries and Kohlberg (1987) examine three different programmes which are based on Piagetian approaches. According to them, "none of these Piagetian programmes [which are developed by Lavetelli, High-Scope and Kamii-DeVries] is just Piagetian. Each recognizes certain limitations in using

Piaget's theory alone as a basis for educational practice".

Gross (1985) points out some Piagetian programmes which have failed to demonstrate the contributions of his theory in terms of education. In the some work, however, he also indicates that the defenders of Piagetian-based programmes asserted that they had not been given ample time to present the effectiveness of their programmes. They argued that pressure was placed upon demonstration programmes to cause short-term results, while Piagetian programmes emphasize a type of learning that is more gradual and whose results become apparent only after a long period of time.

Bryant (1984) thinks that, as far as teachers are concerned, the implications of Piaget's theory about children's logical skills are restrictive and negative. However, he indicates that there is also a positive aspect in Piaget's theory in that the child can construct the world for himself, explain things to himself and when, through some conflict, he finds these explanations inadequate, he can adjust them until they work. Bryant's conclusion still seems to tend towards the positive, though he has criticised many aspects of Piaget's theory in terms of its educational implications. In his (1984) conclusion, he advocates that,

Piaget did us all a great service by pointing out that children may grow up intellectually by constructing their intellectual world for themselves. It is encouraging to know that teachers can help children to do so.

Leslie Smith (1985) actually follows Bryant's (1984) arguments about Piaget's theory in educational terms. Smith reaches his conclusion that Piaget's work is bleakly negative in its educational implications by considering five critical points which are as follows;

1. Piaget himself has no real interest in education,
2. Piaget's theory offers a restricted interpretation of cognitive development which proceeds from absence to presence of logical ability,
3. that theory requires a commitment to the matching principle,
4. the theory reduces, or even eliminates the role of transmission in teaching,
5. Piaget's model of the mechanism of development is either false or untestable.

These criticisms summarize some causes of the arguments and problems related to Piaget's theory in terms of educational practice. However, in his conclusion, Smith (1985) asserts that "none of these five criticisms has been accepted and, to that extent, Piaget's theory - in its educational deployment - survives critical

scrutiny". He seems also optimistic about the future of the Piaget's theory in practice, believing that "a constructivist psychological theory would be more than passing interest to constructivist education in the future".

Conclusion

To conclude, one may accept that Piaget's theory seems at times to lack clarity in terms of educational practice. It can be seen that there are some arguments against Piagetian approaches in the field of education. However, one basic reality is that Jean Piaget is not an "educator" and he did not produce theory for education, though many researchers have been applying his theory into educational practice.

As DeVries and Kohlberg (1987) point out, constructivist education has a short past and "it is not yet known fully what constructivist education should be". Besides, it seems that there is no possibility of a final word in educational approaches. Their conclusion indicates that this of lack of clarity demands more collaborative research between the researchers on education and the researchers on child development. From this integration educational practice can be improved, since experimental education also requires the integration of theory and practice.

To sum up, given the fact that Piaget's theory has got many positive effects on educational practice (as illustrated on the previous pages), putting a label such as "bleakly negative" on Piaget's theory in terms of its educational implications seems to me an "extremely negative" assessment. However, the suggestion that Piaget's theory may be "bleakly negative" in education can provoke Piagetian researchers to investigate and display other workable and much more beneficial aspects of Piaget's theory for educational practice.

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