

## Epistemological Dimensions of The Constructivist Learning Theory

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### Abstract

*The constructivist learning theory, in line with the requirements of the modern society, introduces new views such as an integrated world view on education, cooperation, tolerance, questioning the outside world, discussing the live in all aspects, and evaluation of the educational practices. This study focuses on the epistemological dimensions of the constructivist learning theory, considering that there is one epistemological characterization/approach adopted by each learning theory. Therefore, the study focuses primarily on epistemology and focuses on basic qualities by comparing the paradigms of the nature of knowledge with the semantic methodology. As a result, individuals who live, act and think in social reality pre-select and anticipate this world they experience as reality in their daily lives through a series of common sense constructs. Individuals must base their experience on their reality to understand any reality in the realm of "living". But knowledge is based on an understanding of the meaning of this experience, not the experience itself. In other words, an individual's ability to make sense of his own experiences is to construct knowledge by looking at his perspective.*

**Keywords:** *Constructivist learning theory, epistemology, nature of knowledge.*

## Yapılandırmacı Öğrenme Kuramının Epistemolojik Boyutları

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### Öz

Yapılandırmacı öğrenme kuramı, modern toplumun gereklilikleri doğrultusunda, eğitim, işbirliği, hoşgörü, dış dünyayı sorgulama, her yönden canlıyı tartışma ve eğitim uygulamalarının değerlendirilmesi gibi entegre bir dünya görüşü gibi yeni görüşler ortaya koymaktadır. Bu çalışma, her öğrenme teorisi tarafından benimsenen bir epistemolojik karakterizasyon/yaklaşım olduğu göz önüne alındığında, yapılandırmacı öğrenme teorisinin epistemolojik boyutlarına odaklanmaktadır. Bu nedenle, çalışma öncelikle epistemolojiye odaklanmakta ve bilginin doğası paradigmasını anlamsal metodoloji ile karşılaştırarak temel nitelikleri ele almaktadır. Sonuç olarak, toplumsal gerçeklik içinde yaşayan, hareket eden ve düşünen bireyler, bir dizi sağduyu kurguları vasıtasıyla günlük yaşamlarında gerçeklik olarak yaşadıkları bu dünyaya göre tercihlerini öngörmektedirler. Bireyler, "yaşam" alanındaki herhangi bir gerçeği anlamak için deneyimlerini, yaşadıkları gerçekliklerine dayandırmalıdır. Ancak, bilgi deneyimin değil, bu deneyimin anlamının anlaşılmasına dayanmaktadır. Başka bir deyişle, bireyin kendi deneyimlerini anlama yetisi, kendi bakış açısından yola çıkarak bilgi inşa etmektedir.

**Anahtar Kelimeler:** Yapılandırmacı öğrenme kuramı, epistemoloji, bilginin doğası.

## **Introduction**

Today, in the world rapidly changing, relations become more and more complex, and the development of the information technologies decrease the distances among people, make it easy to access the ever growing information. Because of this situation traditional education approach, which is rather based on information overload, fails to meet the requirements of the modern world. The developing information and communication technologies, besides the world that gets more and more complicated, leads to reshaping of the concepts relating to the human beings, and creation of new approaches relating to these concepts. This situation necessitates new approaches and regulations regarding the education concept, one of the basic concepts relating to human beings, and individuals need to be educated according to the changing living conditions and expectations.

The constructivist learning theory, in line with the requirements of the modern society, introduces new views such as an integrated world view on education, cooperation, tolerance, questioning the outside world, discussing the life in all aspects, and evaluation of the educational practices. This study focuses on the epistemological dimensions of the constructivist learning theory, considering that there is an epistemological characterization/approach based by each learning theory.

In order to perform the epistemological analyses of the constructivist approach, we need to involve ourselves in the matter of "knowledge". We should put the human beings, in other words the human beings who want, feel, design things and set goals, in the center, and acknowledge that knowledge or the concepts related with knowledge merely connected with perception, design and thinking materials. Therefore, the epistemology/philosophy of knowledge that studies the nature of knowledge is discussed herein below.

## **Epistemology (Philosophy of Knowledge)**

The branch of philosophy that addresses the question "What is knowledge" and is concerned with the nature of knowledge is called epistemology, or philosophy of knowledge. The world of thinking is

shaped with the question of “What is knowledge?”, and suspicions about knowableness of a thing orientated the philosophy to seek a criterion for knowledge. Epistemology, or theory of knowledge, that is shaped as a search for evidence about the knowableness of a thing, initially linked the nature of knowledge in the context of definiteness or truth criterion. Sometimes, it was believed that this definiteness, and consequently knowledge, could be attained sometimes through escape reason from prejudices and reaching clear knowledge, and sometimes confrontation of knowledge directly with objects they correspond with in the outside world. This philosophical view would organized for its deficient aspect, i.e. knowledge of external reality and reliability of perception, with the experimentalist philosophy. In discussion about the nature of knowledge, the function of epistemology also change in the context of time, and the modern epistemology commits itself to laying the foundation for the knowledge acquisition processes leading us only to approximate truth, rather than defining the methods that would lead us to absolute knowledge. From this perspective, epistemology is considered a part of psychology (Cengiz, 1997, p.74; Yazici, 1999, p.70-74). Due to the question of how to access knowledge’s that can be answered this position, it may be through studying the cognitive processes.

The knowledge that questioned here belongs to human. Then, the knowledge that is the subject matter of epistemology is the human knowledge itself (Cucen, 1999, p.69). And such a knowledge is understood as a mental and intellectual activity.

In all fields, knowledge has two inseparable elements. One of them is the subject (human) as the knower, and the other is the known, i.e. the object. Each piece of knowledge is based on these two elements, in the context of connection between them (Mengusoglu, 1983, p.51; Cücen, 1999, p.70). The direction of interaction of this link between the knower and the known shows the approach of knowledge acquisition.

According to Dilthey, the knowing subject is not the “knowing” subject merely within the perception-conception, sensibility-intelligence correlation. The subject knows in the “actual process of living”. Subject establishes its connection with the object in the processes of knowing, evaluating, acting and wanting processes. When Dilthey that uses the “life integrity” or “living” concepts, the states that they are nothing else

than an aggregate of relations of the individual with others. As a segment of inter-human relations, living is a formation different from natural reality. According to Dilthey, these differences, which arise from the emergence of our conceptions about the nature are "conceptions deriving from our own willful living". In other words, the nature is not open to us in itself, but we know it in the context of relativity to us. The nature is extrinsic to us with its solitariness. We turn even to nature starting from the aggregate of our relations with others, in other words, from "living" (Özlem, 1996, p.137; Kuş, 2003, p.142).

According to Dilthey, human beings are always within the context of relationships which were directed by human-specific beliefs, tendencies, values, norms, ideas, rules, conceptions, i.e. in other words, by the products of life, and they look at everything from this life of human relations that are products of "livings", and in spite of everything, they look at everything from inside of this "living". This has always been the same, in other words since people began to live in groups. "Living" is a thing that forms historically, and in terms of containing everything that is human-social, it is nothing else than "spirituality" as an organism different from the nature. And the cause and effect relation in the area of "nature" can only be established as a meaning and action, symbol and action, motive and action relation in the area of "living" of human beings (Özlem, 1990, p.29). Understanding the relation here can only be possible with an understanding method that would replace or be an alternative to the causal relations between incidents (Kasapoğlu, 1992, p.59).

### **Interpretative Methodology**

"Understanding" is not merely a method of understanding what others do or an emphatic understanding of their consciousness in a slightly mysterious and complex manner. "Understanding" is the basic ontological circumstance of the human life in the society.

The interpretation method has two functions. First, because there is the meaning and action relation instead of cause and effect relation in the "living" space, it is necessary to understand the meaning that motivates the action. This meaning may be a rule, value, norm or the likes. Second, because the "living" space is historical in its essence, and since the meth-

od of understanding cannot be used for establishing causality valid for all times, the causalities in this field are subjective. According to Weber, individuals inscribe a subjective meaning to all behaviors they exhibit (Ozlem, 1990, p.30; Giddens, 2003, p.32).

There is no external reality knowledge independent from our theories, beliefs and interpretations in interpretative epistemology. Subjectivity instead of objectivity is adopted, and humans construct the reality with their feelings, thoughts and interpretations. A "there, outside" reality approach of humans, which is independent from themselves is rejected. Such a reality understanding is a naturalistic approach and based on positivism. However, reality is not independent from interpretations of humans, and it is continuously rebuilt through these interpretations.

According to Keat&Urry, scientific theorems are not considered correct or wrong descriptions of the external reality, and mostly independent from individuals, independently from individuals, they instead of this considered, they creations and constructions of scientists. Again according to them, acceptance or rejection of a scientific theory is subjective. Because, it is considered here that the practical interests, aesthetics or moral values, etc. of the scientist interferes in. Individual scientists or scientific community can be considered as the source of this subjectivity. In any case, existence of rationally and universally valid criteria or standards for evaluation of scientific activity, or their sufficiency, is denied (Keat&Urry, 1994, p.74-75).

In this case, when we look into the "knowledge" matter, there is a variety of paradigms relating to the question, "what is the nature of knowledge?".

### **Paradigms Relating to the Nature of Knowledge**

Generally, the paradigm concept which contains all kind of ideal types or model senses that provide a manner of looking at something and judging criterion may direct people in making some decisions about the nature of knowledge and carrying out these decisions (Palabıyık, 2004, p.325; Ekiz, 2003, p.6).

The meaning ascribed to the term of paradigm by Kuhn has specific common elements with concepts developed with considerably different

philosophical traditions. All these concepts are used for the purpose of the showing that, it is necessary to use the meanings of terms, expressions or descriptions hermeneutically, in other words, in connection with the signification frames (Kuhn, 1982, p.54; Giddens, 2003, p.187).

According to positivism, nature of knowledge consists of facts. Facts are a space that can only be sensed and observed. In this space, observer and observed are divided from each other by absolute borders. In other words, principles and processes of reasoning are determined and everyone involves in efforts of understanding and measuring the unknown using these principles and processes with an objective approach. With his remark "God doesn't play dice!", the well-known physicist Albert Einstein means that human beings, who live in a harmonious and orderly space can reach the knowledge of physical actualities. Only the scientific knowledge can give us the knowledge of physical actualities. Knowledge is nothing else than scientific knowledge, in other words, the field of experiment and observation (Hancerlioğlu, 1978, p.317; Yildirim & Simsek, 2004, p.21). All meanings out of this field, remains out of the signification frame of positivism.

Auguste Comte asserts some rules to determine what positivism is:

***Knowledge must be based upon facts:*** Assumptions are inevitable, but they must not be related to the structure of the object and be temporary. These must be replaced with facts.

***One cannot go beyond the boundaries of observation:*** Nothing that is not based upon observation can be considered knowledge.

***Connections should be established between separate facts:*** Positive knowledge moves from observable facts. It is necessary that these facts are definite and specific ones, and that the connections between them should be established to accurately determines these facts (Akarsu, 1979, p.14; Comte, 2001, p.20).

Challenging the previous conceptualization relating to reality and knowledge, post-modernism questions the positivist knowledge approach of Modernity with the question "Is the science only true source of knowledge?", and accuses modern science with efforts to put the human

mind into a single shape. On the other hand, the post-modernist approach expresses that it is necessary to explore knowledge and reality not with singularity but with plurality, not merely with reason but with other resources as well, and not with a single method, but with many methods, and it adopts relativity in parallel with the pluralist view (Bayhan, 2001, p.154; Cücen, 1999, 204; Punch, 2005, p.137).

Post-modernism challenges the approach that knowledge is impartial and definite, and advocates that all knowledge is produced through discourse: each piece of knowledge is obtained through a built, arguable specific point of view, and is multi-voiced. On the other hand, post-modernism claims that knowledge is based on socio-cultural contexts. In other words, human beings effectively participate in the process of creation of meanings. Each piece of knowledge is produced from a "specific point of view" (Yıldırım&Şimşek, 2004, p.25; Punch, 2005, p.139).

The basic characteristics of post-modernism which asserts that valid knowledge can be obtained through understanding of the values and acceptance of value differences are summarized as follows (Özdemir, 2004, 318; Bayhan, 2001, p.156):

- Image replaces reality: A port-modern world is a pluralist and diversified. Countless of images circuit the world through mass communication media.
- Brightness of meaning rather than clarity: Instead of accepting "one" or "other", post-modernism accepts both "one" and "other", and bring out a combination of meaning and focal point on several levels. And this brings along a eclectic knowledge approach.
- Time transforms into continuous moments: Moments such as the past, present and future disappear, and "now, here" becomes a value.

According to this critical theory that began with Kant, there are some main concepts (categories) in the minds of people before experiments. Individuals receive some knowledge from outside through experiments. Experiments gain an order and become knowledge only through these concepts. Categories provide a formal framework to experiments (Gokberk, 1990,p.399). However, in order to make these data meaningful, the mind needs to add something to them. In other words, it has to interpret

them. The knowledge that forms as a result of this interpretation is not like itself that exists outside. Gadamer thinks that this understanding is based on mutual exchange between two reference frameworks or different cultural frameworks. For example, understanding a text with the reference of a past period or a distinctive culture is a and in the process observer penetrated to a foreign existence style and enriches his/her knowledge about himself, herself by understanding others perspectives. (TezciandUysal, 2004, p.2; Giddens, 2003, p.79).

*Table 1. Basic Characteristics of Paradigms Relating to the Nature of Knowledge*

<b>Positivism</b>	<b>Post-modernism</b>	<b>Critical Theory</b>
The universe is in itself an aggregate of uniform, non-interactive and distinctive systems.	The universe develops complex, variable, diverse and distinctive systems.	The universe becomes real with the feelings, thoughts and interpretations of humans.
There is causal relationship between pieces. Knowledge and science are limited to research of connections between incidents.	There is reciprocal interaction between pieces.	There is an understanding based on the reciprocal exchange between pieces.
The universe is of a mechanical nature that goes like clockwork.	The universe is of a holographic nature, where everything is related to each other, and each piece conveys the knowledge of the whole.	The universe has subjective interpretations.
Future of the universe can be predetermined through necessary mathematical calculations.	Probabilities relating to the future can be known, but definite results cannot be known.	Probabilities relating to the future may produce different results for each human being.
Change is in quantitative and aggregation form.	Change may display qualitative and mutual causality.	Change shows itself within a meaning-action correlation.
In knowledge acquisition process, the observer and the observed diverge from each other with definite lines. Objectivity is a must.	In knowledge acquisition process, the observer and the observed cannot be alienated from each other. The observer is a participant with a perspective.	In knowledge acquisition process, each observer may interpret the observed differently.
Knowledge is brought to light through exploration.	Knowledge is created through interpretation.	Knowledge comes into existence as a result of subjective "understanding" and "interpretation".

In summary, according to positivism, knowledge consists of verified hypotheses that can be accepted as facts or rules. However, there is no single truth or reality in post-modernism. And it does not deny the source of belief with its pluralistic context and method approach. In criti-

cal theory, knowledge contains historical and structural apprehensions, which can be transformed in time. The table below summarizes the basic characteristics of paradigms related to positivism, post-modernism and critical theory (Özdemir, 2004, p.314; Soykan, 1994, p.21; Hicks, 2004; Huemer, 2002).

## Conclusion

Human being is not only an entity that is capable of thinking and produces concepts, but also an entity that is capable of perceiving, sensing the outside world, and that shows positive or negative reactions. Therefore, in addition to their power of intelligence, human beings also have the capacity to be influenced and leave a trace (Akşin, 1993, p.76).

The relation between the knower subject and the known object is an inherent relation according to the constructivist learning theory. Because, these relations discovered through experience are not independent from the object they belong to, and from the observer. The data to be obtained by the subject in relation to the external reality may be separate from those to be obtained by another subject in relation to the same reality. Because, the knowledge that comes to the mind directly or indirectly cannot be recorded as a camera does. Differences in perception power, emotions, beliefs and preliminary knowledge of individuals in knowledge acquisition prevent this sameness (Öner, 1998, p.3; Cengiz, 1997, p.75). In this respect, the fact that the meaning of a concept can be different in individuals unfolds as a requirement of the human nature.

Consequently, individuals as entities living, acting and thinking in social reality choose and interpret this world, which they experience as reality in their daily lives through a series of their common sense construction, in advance. In order to understand any reality in the "living" area, individuals should establish that reality firmly with their own experiences. However, knowledge is not based on the experience itself, but on the perception of the meaning of this experience. In other words, individual's capability to understand their own experiences means, building the knowledge by looking from their own perspective (Fay, 2001, p.47; Kuş, 2003, p.70).

In this case, human being is not a mere knowledge subject. Knowledge is an existence condition of human beings. Even for anthropology, knowledge is one of the actions of life for human beings. Considering knowledge separately from human beings' interpretations means missing the relation between knowledge and life, and acting by breaking the subject and the object off from their connections (Mengusoglu, 1983, p. 55-56). However, objects are a world of existence, where human beings live within and establish tight connections with, in other words, human structures.

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