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# Effective learning environments in relation to different learning theories

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**Abstract**

There are diverse learning theories which explain learning processes which are discussed within this paper, through cognitive structure of learning process. Learning environments are usually described in terms of pedagogical philosophy, curriculum design and social climate. There have been only just a few studies about how physical environment is related to learning process. Many researchers generally consider teaching and learning issues as if independent from physical environment, whereas physical conditions play an important role in gaining knowledge; in learning. Schools' applications of learning theories had better determine morphological characteristics of them. Designers should follow a holistic approach to create effective learning environments. Nonetheless, this study tends to search for diverse learning theories and the description of related learning environments corresponding to each theory. School designers should try to create suitable morphological compositions to support them and should suggest design criteria for convenient spheres. Finally, this approach infers some conclusions through out this paper.



*Keywords: Cognitive structure; Learning and learning process; learning theories; learning environment; school design.*

## 1. Introduction

Learning is an epistemological issue since it concerns knowledge and requires a large research which is not our focus in this paper. Nevertheless, we all are aware of the importance of its cognitive structure; learning as gaining knowledge; processed information that is and yields subjective and objective images of the external world. Besides, subjective images derivate also inter subjectivity affords different approaches regarding learning theories, as explained below, employing learning instructions such as learning by analogy which concerns comparability in some respects, by being told, by discovery, etc.

## 2. Learning theories

There have been developed some theories to describe how people and animals learn; to understand the complex process of learning. This paper is based on six common theories, namely; behaviorism (Skinner, 1953), cognitivism (Gagne, 1984), constructivism (Boyle, 1997), experiential (Kolb, 1984), humanistic (Huitt, 2009) and social-

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situational (Bandura, 1977) learning theories. These common six learning theories and the effective learning environment for them are presented, briefly.

### *2.1. Behaviorist learning theory*

Behaviorism concerns the observable change in behavior. Behaviorists believe that learning is provided by a change in actions through an explorative process. It exposes individuals to external stimuli until a desired response is received. In these schools, knowledge is transferred by the teacher while the learner is a passive participant. Nevertheless, this knowledge is viewed as objective, factual and absolute (Harzem, 2004; Akınsami, 2008).

Behaviorist schools are typically framed in single buildings with several stories. Classrooms are located at one end for new learners and moved through the other end for upper grade learners. Classrooms are laid out in rows and columns and provided minimal room for flexibility. The teacher's desk is the main point of focus and has a control point (Akınsanmi, 2008) (See figure 1). Long corridor with two side classroom is suitable for behaviorist schools. This kind of arrangement provides desired responses of the teacher centered education.

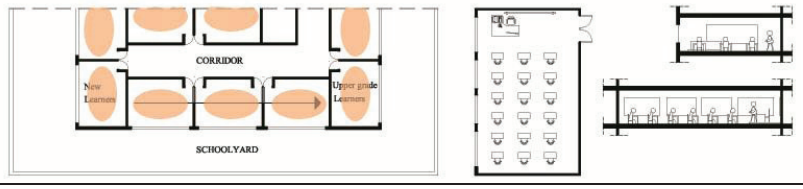


Fig. 1. Effective physical environments for behaviorist learning theory

### *2.2. Cognitivist learning theory*

Cognitivism emerged when researchers found out that behaviorism did not account for all types of learning. According to this theory knowledge can be viewed as scheme, that is, symbolic mental constructions that are organized or processed in the mind. Learning occurs when there is a change in the learner's schemata; the learner is an active participant (Gagne, 1984; Akınsami, 2008).

According to this theory, children need to explore, manipulate, experiment, question, and to search for answers by themselves. Thus, school design should create sphere which stimulates curiosity for exploration. Schools follow this theory are typically laid out like campuses and aren't often framed. They are usually single or two-story buildings connected by various walkways, which provided opportunities for the students to interact with the outdoors, supporting the explorative approach (Akinsanmi, 2008). Learning is much more meaningful if the child is allowed to experiment on his own rather than listening to the teacher's instructions. This is why they need places for individual and group study besides social interaction (See figure 2).

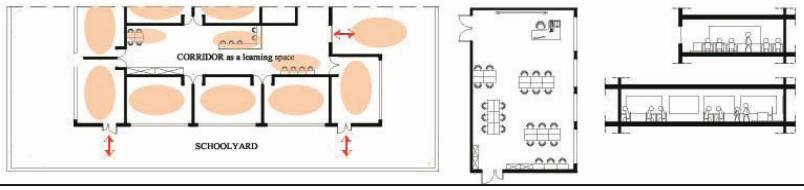


Fig. 2. Effective physical environments for cognitivist learning theory

### *2.3. Constructivist learning theory*

Constructivism assumes that learning is a process of constructing knowledge rather than acquiring it. It takes the learner's social, cultural and contextual conditions into consideration and theorizes that the learner constructs knowledge through experience. In other words, learners interpret new information through their contextual experiences and build on their existing knowledge from the conclusions reached during the assimilation of new knowledge and reflection on it (Boyle, 1997; Devries and Zan, 2003).

In suitable school environment for the constructivist theory; corridors can be designed as a learning space and place for a social interaction instead of long corridors which serve only for circulation. And classrooms can be designed as articulated spaces where children can study by themselves or within a group, because students sometimes need places to be alone for intrapersonal intelligence, and sometimes for active social interaction for interpersonal intelligence (See figure 3).

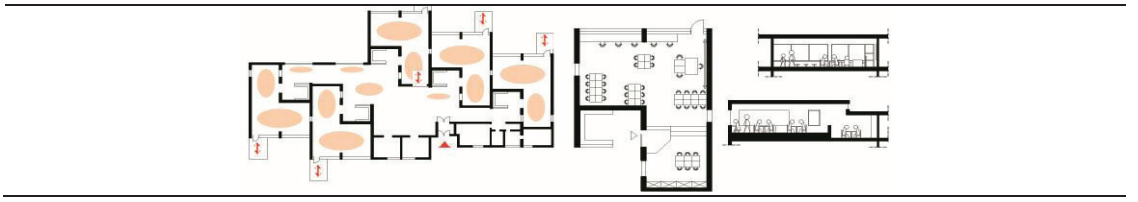

Fig. 3. Effective physical environments in Montessori School, Delft (Hertzberger, 2008)

*2.4. Experiential learning theory*

Experiential learning theory is a holistic perspective on learning that combines experiences, perception, cognition and behavior. The theory emphasizes the central role of experience in the learning process. It is a continuous process grounded in experience (Kolb, 1984).

The experiential learning classroom environment described by Kolb (1984) may provide an opportunity for consciously reflecting on the thoughts, emotions and behavioral actions and transforming them. Accordingly, corridors, canteen, outdoor places…etc. can be designed for group learning to provide social learning and stimulate the social brain; turning break spaces into social area for conversation. Classroom design may have flexible properties and allow for multiple choices of instruction and learning. Experiential learning can take place inside in the classrooms and outdoors (Beard and Wilson, 2006). Thus designer should relate the in- and outdoor learning (See figure 4).

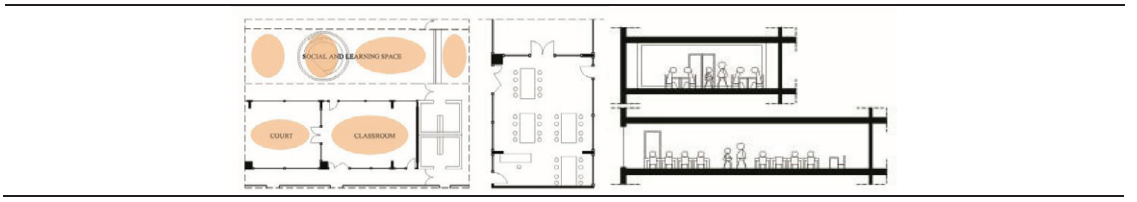


Fig. 4. Links between the in- and outdoor learning space (Herztberger, 2008)

*2.5. Humanistic learning theory*

Humanists have priority for human needs and interests. They also believe that it is necessary to study the person as a whole, especially as an individual grows and develops over the lifespan (Edword, 1989; Kurtz, 2000; Huitt, 2009).

Abraham Maslow is a humanistic theorist and explained that every person is born with a set of basic needs as; biological and physiological, safety, belongingness or love, self-esteem, and self-actualization needs. He believed that when lower needs are fulfilled, the higher level needs are emerged (Madsen and Wilson, 2006). Schools following this theory should provide these needs of pupils. Environment firstly should provide the biological and physiological needs like clean air, comfort temperature, good lighting…etc. Besides, it should be safe enough for pupils to feel emotionally secured. Child can feel belonging to his class-school if he is allowed to personalize his environment. That is why classrooms can allow maximum amount of independence to realize this. Further, pupils also can work on different issues, in different groups at the same time, observe what others doing, learn from one another, and make interpersonal relationships (See figure 5).

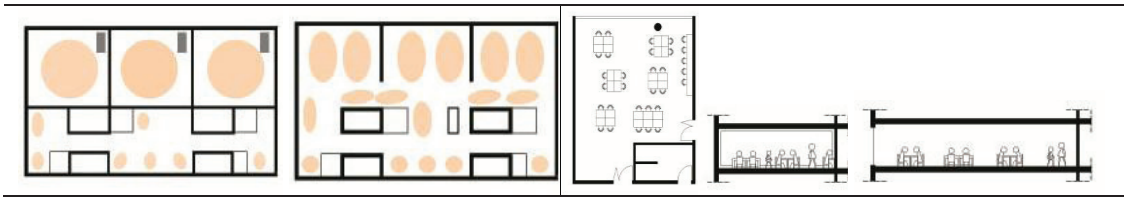

Fig. 5. Spaces for social learning and interpersonal relationships (Herztberger, 2008)

Self-esteem requires school environment to be equal for all students; so that the child believes that every student has the same rights at school. And if he understands that nobody is surpassed by another and every student is equal, he feels being respected by others. For self-actualization, school environment must offer choices of spaces which can reveal student's potential and help pupils to do what they aimed.

### *2.6. Social- situational learning theory*

Social-Situational theorists emphasis that; learning takes place in social relationships. Social learning theory posits that people learn from observing other people. By definition, such observations take place in a social setting (Smith, 1999; Merriam and Caffarella 1991). According to Bandura (1977); most human behavior is learned observationally through modeling: by observing other ones, they conceive idea about how new behaviors are performed, and eventually, this coded information serves as a guide for action.

This theory interprets learning process as an interaction and observation in social context. Many of these theories which were mentioned in the beginning of this part (except the behaviorist learning theory) stress on the positive effect of observation, group workings and social interaction within this process as social-situational learning theory. Thus, same kind of design suggestions and rules for other theories about effective learning space aspect of the social interaction and observation, can be considered in the process of the design of schools responded to this theory (See figure 2, 3,4,5).

## 3. Conclusion

Researchers of "learning theories" often base their views on physiological, psychological and sociological changes that take place during learning process and often exclude the physical conditions around it. As a result, these environments are often described in terms of pedagogical philosophy, curriculum design and social climate and there is little research on the physical environment's role on it. Nonetheless, designers, architects, engineers, and facility planners of physical learning environments have to respond to a program of spatial requirements and relationships (educational specifications) when creating a physical context for learning environments (Akinsanmi, 2008). In this context, the study tends to research various learning theories; the description of their places associated with each theory, and suggests design criteria for an effective learning condition. School's application for learning theory should reflect physical context of the school. When designing for suitable learning atmosphere, design activity should follow a holistic, systemic way; thus, all aspects should be taken in to account.

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