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Providing a Conceptual Framework for Knowledge- Oriented Learning

Reza Dehkhodaei[1], Mohammad Hassanzadeh [2,*]
[1] *PhD Candidate, Knowledge and Information Science, Knowledge Management, Tarbiat Modares University, Tehran, Iran. r.dehkhodaei@modares.ac.ir*
[2] *Professor, Knowledge and Information Science, Knowledge Management, Tarbiat Modares University, Tehran, Iran. hasanzadeh@modares.ac.ir, 0000-0002-6175-0855*

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ABSTRACT

Because the learning process involves the entire life of individuals from birth to the time when the individual is conscious, and also because of the importance of knowledge and learning in today's societies, this text provides an overview of concepts related to the field of learning and related aspects. Knowledge was done to provide a basic framework in addition to further clarifying the context, in the hope that learning would move towards knowledge and be practical. Do not forget after a while. Knowledge-based learning means that the learner can first acquire sufficient knowledge of himself with the help of his educational system and teachers and then learn according to his past so that he can finally acquire new knowledge and combine this knowledge with his previous knowledge. To integrate to be institutionalized. In this case, what has been learned will never be forgotten and can be applied in similar Situations. **©authors**

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1. Introduction

Human has been learning since birth. From the beginning, when the child tries to understand his new world and the environment and adapts to it, he or she tries to learn the surrounding factors such as the language of those around him, walking, and in general, to learn how to live. After entering school, he tries to learn science and progress to the point where he grows older and reaches higher levels, whether, in scientific life, social life, or personal life. Rahmani (2017) also states that because human beings are involved in interaction with their surroundings from birth, learning can be found in all aspects of his life.

Learning has different levels and types, and over time, different theories and models have been proposed for it. There is a type of learning called meaningful learning that emphasizes the existence of subject knowledge and the ability to apply it to learners (Mayer, 2002). In this type of learning, the user acquires knowledge of the subject as a result of learning and can use it to solve future problems. This type of learning can be considered close to Knowledge- oriented learning by adding specific concepts to it.

Because today's people need to know how to access information and use it in life situations, and also because people today are faced with situations for which they do not have a ready answer and therefore need to Philosophers and theorists have turned to new theories rooted in philosophy and scientific thought, such as constructivist theory (Barzegar Befrooi, Khezri, and Shirjahani, 2013).

This theory specifically has a student-centered approach that puts the student in a position to find a solution and build new knowledge. In this environment, learning is based on learners' interaction and teachers have a facilitating role to provide an environment for learners to actively create knowledge in the mind based on experiences and interests. Therefore, learning with this feature is lifelong and therefore this theory is one of the topics of interest in Knowledge-oriented learning (Jamei and Gheibi, 2020).

Accordingly, learning is the foundation of education. Learning is defined as the acquisition of knowledge, information, various habits, and problem-solving skills in different situations. Learning has various components such as creating lasting change, creating behavioral ability, and change resulting from experience (Panahi, Ghaedi, Zarghami, and Abdollahi, 2017). Therefore, it is understood that learning is related to knowledge. In this way, if learning is based on knowledge and experience, it can provide the ability to solve problems in similar situations in the future, which is the highest level of learning.

Another important component of learning that is not unrelated to the topics is the development of critical thinking in learning. Pascarella and Terenzini (1991) considered critical thinking to include the general abilities of individuals to define central issues, hypothesize, recognize the importance of relationships, conclusion, deduction, interpret, and critically evaluate. According to research results, the development of critical thinking in learners depends on the learning environment and learners' interaction in that environment and participatory learning (quoted in Hosseini, 2009).

Also, due to the changes that have taken place in various aspects of individual and social life, education systems have faced challenges. One of the attempts to overcome it is to present a new theory of learning called communicationism. From this perspective, learning is the process of creating new connections or the process of shaping and forming networks. In this view, knowledge, and cognition are distributed at the level of a network of people and technologies, and based on this, learning is considered as the process of communication, growth, and navigation of that network (Zarei, 2014).

A review of learning resources and concepts shows that there is a close relationship between knowledge and learning. In this way, knowledge is obtained through learning, and if learning leads to the production of new knowledge, it is done at

its highest level. Today, traditional methods of learning and teaching can not meet the creative minds of humanity and, of course, the complexities of technology, industry, and society. For education in today's system not only for obtaining a degree and spending time and can lead to lifelong learning to be applied in practice in addition to studying theoretical topics, but it is also necessary to study and apply new learning methods in relation to knowledge creation knowledge-oriented learning.

So, Due to the importance of Knowledge in today's society as well as learning, which is an important part of societies, especially advanced and scientific societies, in the present text, a review of the concepts of this field, namely the field of learning, was done to give readers a clearer understanding of learning. And especially achieve Knowledge- oriented learning, and then provide a framework for creating or developing a model for Knowledge- oriented learning by providing a proposed framework.

2. Methodology

The method of the present study is narrative review. For this purpose, the first related keywords such as learning, knowledge-oriented learning were searched in Google Scholar database. The reason for choosing Google Scholar was because this database searches for the desired keyword in various databases, so it is possible to identify sources that can access the full text. Also, in order to expand the search, the desired terms were searched in other databases such as sid, civilica, noormags, magiran, etc. At this stage, by studying the sources that were thematically relevant to the subject under study and were related to the 2000s and beyond, and it was possible to access their full text, the theoretical foundations and literature of the subject were presented. At this stage, keywords such as scaffolding, constructivism learning, which were obtained using primary sources, were searched to enrich the written literature. Finally, by reviewing the sources related to learning models, which were obtained from the keyword learning models, an initial model for Knowledge- oriented learning was presented to provide the basis for further research in providing a documented and comprehensive model of this field.

3. Literature

3.1. Learning

Theories and topics related to learning have been proposed since the late nineteenth century, which has studied this issue from different angles so that today there is a great variety of approaches and theoretical structures in the field of learning (Illeris, 2009). Learning, in general, can be considered any process that causes a change in humans that is not due to puberty or aging (Illeris, 2007, quoted in Illeris, 2009).

Learning has both existential and experiential aspects, and it can be argued that the prenatal child also has learning experiences while still in the mother's womb, and this continues until the loss of consciousness until death. (Jarvis, 2009).

Learning involves two general processes. One involves the external interaction between the learner and his or her social, cultural, and material environment, and the other involves the internal psychological process of detailing and providing. These two processes form a three-dimensional space at the three ends of which are content, motivation, and interaction. Content is about learning and is described as knowledge and skill. In addition, ideas, attitudes, methods, etc. may be considered as learning content and contribute to understanding. By using them to create a personal performance in the face of life's challenges. Motivation then provides the necessary mental capacity to learn through the elements of feelings, emotions, motivation, and will to learn to create a comprehensive mental balance and individual sensitivity. Finally, these two dimensions always begin with the motives of the third dimension, interaction. In this way, the content of learning is influenced by a motivation to learn out of interest or compulsion, and on the other hand, motivations are influenced by the content

and the existence of information may change motivation (Illeris, 2009).

The basis of learning is experience. Experience comes from emotions, and these emotions may not mean anything to humans at first. That is, the body first receives inputs such as sound, image, smell, etc., which do not necessarily make sense to it. But when these inputs are transferred to the mind and brain, they are somehow translated into the language of the mind and become meaningful to the individual, and this is the first stage of learning. But man is a social being and finds social language through communication in society and therefore the expression of learned meanings is manifested in the form of social language (Jarvis, 2009).

Learning in the Illeris model, which will be discussed in later sections, demonstrates its constructive nature. This is based on the assumption that there are mental structures in each person and the learning outcomes are organized in a way in the individual's mind because each person can know in a fraction of a second what He remembered what he had in mind about it. This is called an engram by researchers, which refers to circuits made up of billions of neurons that are activated when a new object is perceived or experienced (Illeris, 2009).

It should be noted that Humans are a combination of mind and body and these two dimensions are related, and therefore the meanings obtained in the theory of learning through the senses should be examined with these two dimensions. There are various theories in this field, for example, Muslin (2001) offers several theories in this regard as follows.

1. Dualism: A human is a combination of two separate beings, namely body, and mind. However, brain studies have shown that brain activity is influenced by the emotions received from the body and there is a close relationship between the two.
2. Mind/brain identity: There are monistic theories that man is part of the material world and that mental states are identical with physical conditions, which creates problems for the nature of culture and meaning.
3. Logical or analytical behaviorism: It indicates that mental states and mental issues, after analysis, are in the form of phrases that show the general and potential behavior of individuals.
4. Functionalism: indicates that the mind is a function of the brain. In this theory, meaning, intention, irrationality, and emotion are eliminated.
5. Non-reducing monism: It is a reduction that does not consider mental characteristics as anything more than physical characteristics and believes that mental characteristics are different from physical characteristics in terms of type and cannot be reduced ontologically. A set of mental characteristics make up psychological life. The property of duality is distributed between matter and physical events and is therefore a kind of monism. But these materials and physical events have two types of properties, including physical properties and non-physical mental properties (quoted in Jarvis, 2009).

There are types of learning that can be identified by reviewing research, and the following are the most evident ones. For example, one type is absorption or learning through the plural. In this way, the new topics are related to the previous patterns. A good example of this is learning through school, which is constantly added to one's previous possessions (Illeris, 2008, quoted in Illeris, 2009).

Another type of learning is adaptation or transcendence, which is when new perceptions have nothing to do with previous assumptions and are difficult for one to understand and relate to. Accordingly, the person must make a change to adapt to the new conditions. Another type of learning is known as transformational learning. In this type of learning, personality changes or some kind of internal organization occur in

the individual and a set of designs and patterns occurs along with restructuring. Cumulative learning is more likely to occur in childhood, and transformational learning is more likely to occur in specific situations because of the fundamental changes it makes, which is somewhat tedious (Illeris, 2009).

In his article, Kegan (2009) considers two types of learning and states that learning to increase the capital of knowledge, skills and expanding previous cognitive structures causes the reflection of existing references and is literally practical learning. Because it seeks to add new and valuable topics to the existing forms of our cognition. Learning to change not only what we know, but also how we know has an opposite rhythm and is more closely understood in the root meaning of education. Therefore, in informal learning, there is a kind of advancement or form formation. Another type is transformational learning, in which the form is subject to change and increase in capacity. In instructive learning, for example, to study history, one must be proficient in facts, personalities, and events, but in transformational learning, one must have abstract thinking to be aware of facts, perspectives, and possible biases in writing history. Informative learning changes a person's knowledge, while transformational learning changes the way people know.

From one approach, there are three scenarios for teaching and learning that lead to the introduction of three types of learning including non-learning, root learning, and meaningful learning. These scenarios represent three levels or methods of learning. At the first level, where there is a lack of learning, it is clear that the individual's studies are not desirable and there is no change in the individual's possessions. At this level, as Mayer (2002) points out, the learner reads the material, but after a period of time when the material is needed, the person is only able to remember some keywords and does not Can describe it completely and cannot use that information to solve problems. That is, at this level, the person has neither acquired knowledge, nor used the necessary information while learning, nor coded it, nor can use it.

At the second level, the person can fully recall what they have learned in the future and describe the main components but still cannot use them to solve problems. At this level, the person pays attention to the information but does not understand it. That is, it has the knowledge but cannot use it to solve problems. This level is called root learning (Mayer, 2002). In root learning, there are superficial changes in one's knowledge, but new and old knowledge do not merge (Hay, Kinchin, & Lygo-Baker, 2008).

Finally, at the third level, the person has complete mastery of what has been learned in the past and has fully understood it. Therefore, when needed, it can use them to solve existing problems and offer a variety of solutions. That is, it has both knowledges and can use it to solve problems. This level of learning is called meaningful learning (Mayer, 2002). Meaningful learning because it is a transcendent type of learning and has attracted the attention of various researches and, more importantly, it is considered an important part of the present text, is mentioned below.

3.2. Meaningful learning

Novak (1998) defines meaningful learning in that one must have prior knowledge of new information and knowledge. The learner must also be relevant to other knowledge and contain meaningful propositions, and ultimately the learner must consciously decide to add new knowledge to the previous one for his or her learning to be meaningful (quoted in Hay, Kinchin, & Lygo-Baker, 2008).

When the learner acquires the knowledge and cognitive processes necessary to solve the problem and reaches a new understanding of the subject, His learning is meaningful. In this case, there are two components to solving the problem. 1) Creating a mental representation of the problem and 2) implementing a specific plan

to solve the problem (Mayer, 1992, quoted in Mayer, 2002).

An important aspect of meaningful learning in Mayer and Novak's definition goes back to the acquisition of knowledge. In this aspect of definitions, a person acquires knowledge of that subject from the product of learning in any subject, and in this part, learning does not simply mean acquiring and retaining information. Rather, knowledge is extracted from information that can be used to solve problems. In fact, during meaningful learning, a person achieves a correct and complete understanding of the available information and can remember it at any time and perform analyzes that can be used to solve problems. This type of learning can be called knowledge-oriented learning or Knowledge-Based learning because it has the ultimate goal of creating new knowledge in the individual.

There is a concept in learning called scaffolding which is derived from its concept in the field of architecture. This topic is generalized to learning and has been achieved and used in the form of learning in an interesting sense.

3.3. Scaffolding

The term scaffolding was first used by Wood, Brunner, and Ross in 1976 to refer to parent-child interactions in the early years of a child's life. In construction, the term is defined and defined in such a way that in the early stages of construction, this structure or scaffolding is created temporarily to help the successful construction of the building (Gibbons, 2002; Hammond and Gibbons, 2005).

In the learning debate, scaffolding is used as a description of specific types of support in which learners interact with teachers to gain a new understanding. This is achieved with the help of teachers 'basic assistance in advancing students' knowledge and understanding. The term was originally coined by Toos Brunner for the intervening role of an educated learner or another learner (Maybin, Mercer, and Stierer, 1992).

Expanding understanding, temporary support, and focusing more or less on features and tasks are key terms in scaffolding. In fact, scaffolding in teaching and learning includes support for learning and managing things that learners are not able to manage on their own. But this support is temporary in that it enables the learner to learn independently. In addition to focusing on research and learners' curricula, scaffolding in education should also focus on tasks that help learners achieve their goals (Hammond and Gibbons, 2005).

Hence, scaffolding does not mean a simple help. Rather, it means special help from teachers for learners to understand and acquire knowledge, which of course is temporary help. This means that the teacher temporarily helps the learners so that they can participate in the same thing in the future and individually. Therefore, scaffolding is a forward-looking thing in learning and its goal is to create autonomy in learners. In this regard, Vygotsky has stated that what learners can do today with the support of others, they can do individually in the future (Gibbons, 2002).

Mercer (1994) considers the distinction between scaffolding learning and other methods of teaching and learning as follows:

"Students cannot succeed without teacher intervention.

The teacher is intended for some new levels of independent student competence.

The teacher has a special skill and concept in mind.

There must be evidence that students are successfully completing their specific tasks.

There must also be evidence that learners are now able to continue to work independently on tasks or related problems" (quoted in Hammond and Gibbons, 2005, 11).

From the definitions, it is understood that scaffolding is a process in which teachers, when teaching, create a solid framework for learning learners so that the learner can gain a clear understanding of the subject and in the future in different situations can do it to apply. This refers to the creation of the required knowledge in the user and therefore it indicates that scaffolding is effective in meaningful and knowledgeable learning. On

the other hand, another concept that is proposed in learning and is closely related to scaffolding is constructivism and constructivist learning, which is mentioned below.

3.4. Constructivism

One limitation of education is that teachers simply cannot transfer knowledge to the learner, and the learner has to process the information in his or her mind. In this view, which has a constructivist approach to learning, the learner participates as an active factor in the process of acquiring knowledge. Such a view, a constructivist conception of learning, is rooted in the work of Dewey (1929) and Brunner (1961) (Bada and Olusegun, 2015). Constructivism is a metaphor for learning that likens the acquisition of knowledge to a process of construction (Fox, 2001).

Constructivism, which is a method of teaching and learning, is based on the assumption that cognition and learning are the results of mental construction. That is, learners, learn by combining new information and previous knowledge. In other words, learning is influenced by the context in which an idea is taught and influenced by people's beliefs and attitudes. This theory helps in teaching that it teaches people how to acquire and learn knowledge. In this theory, people create knowledge and meaning through their experiences (Bada and Olusegun, 2015).

The main claim of constructivism is that knowledge, especially human knowledge, is obtained through an active manufacturing process (Fox, 2001). Driscoll (2000) argues that in constructivism, knowledge exists in the human mind and does not need to conform to any reality, and as each new experience is gained, learners update their mental models accordingly. They make their interpretation of reality. Jonasen (1994) also believes that constructivism stimulates and influences people's innate curiosity about the world and they use their knowledge and experience to learn to create hypotheses, test their theory and results. (Quoted in Bada and Olusegun, 2015).

Constructivism has a wide range, such as "Piagetian Constructivism (Piaget, 1969; Liben, 1987; Adey & Shayer, 1994); Neo Vygotsky Constructivism (Wertsch, 1985; Brown & Reeve, 1987; Tharp & Gallimore, 1988), learning Mediators of Forrestens (Sharon, 1994), radical constructivism (von Glasersfeld, 1996) and social constructivism in different shades and colors (Rogoff, 1990; Mercer, 1995; Fosnot,1996; quoted in Fox, 2001, 24) whose study of its types has shown its desirable role in learning.

According to Driscoll (2000), constructivist learning theory is a philosophy that promotes the conceptual and logical development of learners. A fundamental concept in that experience is that it is argued that individuals produce knowledge and make meaning based on their experiences. The other two key concepts in this theory are adaptation and integration, which create new knowledge in individuals. Adaptation aligns new and previous knowledge, creates new perspectives, and changes people's perceptions. Integration also changes a person's worldview and mental experiences and is related to a time when new knowledge does not match one's previous possessions, and the learner must change his or her expectations to adapt to the new knowledge. Quoted in Bada and Olusegun, 2015).

In general, claims that have a constructivist view of learning are summarized as follows.

"(1) Learning is an active process.
(2) Knowledge is constructed rather than inherently or passively absorbed.
(3) Invented knowledge, undiscovered.
(4 a) All knowledge is personal and special.
b) All knowledge is socially constructed.
(5) Learning is essentially a process of understanding the world.
(6) Effective problem-solving learning requires meaningful and endless challenging problems for the learner "(Fox, 2001, 24).

However, mentioning them was not without merit.

Tom (2000) introduced four important features for constructivist learning environments that should be considered when implementing constructivist learning strategies. These four features are as follows:

1) Sharing knowledge between teachers and learners
2) Having common authority by teachers and learners
3) The role of facilitator or teacher guide
4) Low heterogeneity of learners in learning groups (quoted in Bada and Olusegun, 2015).

It is understood that constructivism is used in learning in such a way that if there is sufficient knowledge of the learning capacities of students and learners in general, teachings can be promoted to learn more effectively. In a way that played a more effective role in shaping learners' knowledge. Because by knowing people's backgrounds, we can help to shape their knowledge in a more appropriate direction. Therefore, constructivism is a concept that specifically implies the acquisition of knowledge in the learning process and can be considered as an effective part of Knowledge- oriented learning, like scaffolding.

3.5. Learning theories and models

Over the years, the topic of learning has been the subject of much research and in this field, various models, theories, and sources have been published. Examples include Bloom et al.'s classification, Kolb's research on experimental learning theory in 1984, and so on. Experimental learning is generally used by teachers to describe sequential activities derived from educational experiences. Experimental learning requires active student interaction and attention to comprehensive life experiences and is close to long-term learning (Clark, Threeton, & Ewing, 2010).

Regarding experimental learning, Kolb and Kolb (2005) are presented in six statements, which are related to the theory of experimental learning.

1- Learn not in terms of results but as a process and involve students in a process that enhances their learning by using feedback.
2- All learning is re-learning and learning must draw the learners' beliefs and test them and combine them with new knowledge.
3- Learning must be in a state that is compatible with the world, which is dialectically opposed. In this process, people are asked to move between opposing modes of action and feeling and thinking.
4- The learning process is comprehensive and compatible with the world and includes not only cognition but also the integrated performance of individuals in thinking, feeling, understanding and behavior.
5. Learning is achieved through synergy between the individual and the environment and is achieved through the dialectical balance of absorbing and adapting new concepts to existing ones.
6. Learning is a process of knowledge creation and empirical learning theory offers a constructivist approach to learning in which social knowledge is recreated in the pervasive personal knowledge.

Different models are offered for learning. For example, some of the most practical models for adult learning are the Kolb and Fry model (1975), the Jarvis model (1992), the Vygotsky model (1978), the Voorhees model (2001), and the Illeris model (2009) is mentioned below.

Kolb and Fry (1975) in their model described learning in a cycle. In this way, the starting point of learning is the experience that exists in the individual. Observation and reflection then take place in the individual, and by using it, new methods of thinking about the subject are formed in the next stage, and before repeating the steps of the cycle, what has just been achieved can be tested. Therefore, in their model, learners must experience new knowledge and reflect on it and theorize, and finally be able to test

it to achieve learning for them (quoted in Hay, Kinchin, & Lygo-Baker, 2008).

Similarly, Jarvis (1992) provided a learning model. He considered learning to be abstract and from the perspective of individuals and believed that learning is the change of individuals. That is, if someone is changed by a new experience, it means that he has learned from the new experience and considered non-change means not learning. Therefore, it considered three components for learning. 1) Learning is personal change, 2) not change is equal to lack of learning, and 3) to measure the amount of learning, you must measure the amount of change. He also provided good tips on the reasons for the lack of change and the quality of change in the place where learning takes place. In this way, first, assumption (knowing in advance), lack of attention (lack of feeling the need to know), and rejection of learning (lack of need to know for prior thinking) cause lack of learning and learning using practice and reasoning, etc. To make a difference, it can be reflective or non-reflective and rely solely on memory, so the learner decides to adopt strategies that affect the quality of his or her learning (quoted in Hay, Kinchin, & Lygo-Baker, 2008).

Unlike Kolb and Fry and Jarvis, Vygotsky (1978) considered learning to be a social process rather than an individual, resulting from the interaction of individuals. He considered learning to be a communication process that results in the sharing of knowledge. His views were particularly different from those of Piaget, Kolb, Fry, and Jarvis, who saw learning as a personal process. However, according to Vygotsky, Brunner (1985) also considered learning to be a social process and not an individual one. Although Vygotsky did not use the term scaffolding, his view of learning has become one of the most important theoretical issues in scaffolding. Therefore, the view that learning is a social and cultural process is the basis of scaffolding theory and is a key concept in that area of near development (quoted in Hammond and Gibbons, 2005).

Vygotsky (1987) identified the area of close development as a key element in the learning process and defined it as: "The distance between the level of actual development (learner) determined by independent problem solving and the potential level of development guided by problem-solving Adults or working with more capable peers is determined "(quoted in Hammond and Gibbons, 2005, 12). It is the environment in which the learning of new knowledge takes place.

Voorhees (2001) provided a conceptual model for competency-based learning. In this model, there is a kind of hierarchy like ladder stairs in which each step is affected by the upper and lower steps. The first step includes traits and characteristics that are the basis of learning and subsequent experiences can be identified based on them.

The difference between these characteristics and why people pursue different experiences helps to acquire different levels of skills and abilities and knowledge, which are the second stage of learning. These include participation in society through the learning experience, and competence is the result of integrated learning experiences in which the interaction of knowledge and learning takes place. Finally, in the last part of the show, there is the result of using competencies in which performance-based learning can be evaluated.

The basis of learning theory in the field of cognition and perception, according to the model of Illeris (2009) consists of five parts. First of all, it is all psychological, biological, and social conditions that play a role in the learning process. At the heart of these five sections is self-learning, which includes processes, types of learning, and barriers, and these are key elements of understanding and learning. Apart from that, the other two parts include internal and external conditions that directly affect learning. Finally, the last part includes possible applications of learning.

Some models offer a combination of learning methods and offer a combination of

learning, which includes three types. "Skill-based learning, which combines self-directed learning with the support of an instructor or facilitator to develop specific knowledge and skills. Attitude-based learning, which combines different events and delivery media to create specific behaviors, is learning-based. On competency, which combines performance support tools with knowledge management resources and guidance for the development of workplace competencies" (Valiathan, 2002, 1).

In addition to models, various learning strategies help learners acquire, understand, retain, and retrieve new skills and knowledge. Effective use of these strategies is effective in academic achievement and yields positive results. One of these strategies is to draw concept maps (Güvenç, Açikgöz, 2007).

3.6. Conceptual maps

A conceptual map consists of several nodes and links between them that explain a subject in a hierarchical structure. This concept is associated with meaningful learning and constructivism. Of course, there are challenges such as difficulty in providing feedback or complexity for novice learners, but conceptual maps are of particular importance (Cheng, Song, and Chen, 2001). Conceptual maps come in many forms, such as mind mapping or spider diagrams, but Novak's method is more popular and practical in this area (Hay, Kinchin, & Lygo-Baker, 2008).

The place of conceptual maps in learning and its contributing role is clear. Conceptual maps are effective in teaching science and improving the quality of education, and its processes include selecting, organizing, and preparing details (Güvenç, Açikgöz, 2007). So far, conceptual maps have been used in various texts to assess change during learning and its quality, identify student misconceptions, teaching practice, curriculum, assessment, cognitive typology, identification of specialization, and teamwork. It is also used to share and share abstract knowledge and understanding (Hay, Kinchin, & Lygo-Baker, 2008).

One method that can be used to aid learning is based on a combination of conceptual maps and scaffolding. In this method, it is done in such a way that in fact, a conceptual map is prepared in a raw and raw state and some concepts are left in a blank role. In this way, a conceptual map with a basic scaffold can be provided to learners. They can fill in the blanks themselves. In this case, they can learn the subject by providing feedback from the system.

An example of such a method was performed in the study of Cheng et al. (2001) in which they made a comparison between learners' learning rate in using learning using a conceptual map in two modes, one is self-drawing and the other is providing a conceptual map in the form of a predetermined scaffold. They gave. In fact, in the first case, the learners draw a conceptual map, but in the second method, a basic scaffold is provided for the conceptual map and the users fill in the blanks.

The results of Cheng et al.'s (2001) research showed that this system is useful as a strategy in learning and with the scaffolding method, more positive effects on learning were achieved. One of the main reasons for this was the use of feedback that the learner received from the system in case of error and could make their choice by evaluating the system feedback, which expressed the opinion of experts and made a comparison with the map prepared by experts.

The importance of conceptual maps stems from the fact that, as one of the main components of meaningful learning, it is essentially the creation of a relationship between one's experience and previous knowledge with new knowledge and information, and Hay, Kinchin, & Lygo-Baker (2008) In adult classes and lectures, teachers could not use learners' prior knowledge to teach, so the use of conceptual maps can bridge the gap between prior knowledge and new knowledge, especially if associated with scaffolding and constructivism. In general, be effective in Knowledge and meaningful learning.

To effectively learn that leads to the creation of knowledge in learners since 1948 a group of thinkers has proposed a special classification for three areas of cognition, emotion and psychomotor, whose field of knowledge was published in 1950 under Bloom's taxonomy (Bloom, Engelhart, Forrest, Hill, & Kratowhall, 1956, quoted in Huitt, 2011). Due to the importance and relevance of this classification to the subject of the present discussion, it is mentioned below.

3.7. Bloom's taxonomy

Bloom's taxonomy is a hierarchy of learning that begins with knowledge of specific facts and events to more advanced analyzes, syntheses, and evaluations to help learners achieve more complex levels of understanding and abstraction. (Bloom, Crasswell, and Masia, 1984).

The idea of this classification was based on the fact that what teachers want to teach learners is in a hierarchy from simple to complex, and because of their sequence, that level must be well learned to pass each level. The main levels of this taxonomy include knowledge, understanding, application, analysis, synthesis, and evaluation (Huitt, 2011). The following is an explanation of each element.

Knowledge involves remembering, recalling, and memorizing the right information at the right time, which is at the lowest level. Terms used for its purposes include "definition, description, identification, labeling, listing, matching, name, outline, reproduction, selection, and expression" (Bloom et al., 1984, 1).

Understanding is a kind of translation of content into the language of one's mind. Terms used to describe its purposes include differentiation, explanation, generalization, inference,prediction, rewriting, summarizing, and so on.

Application refers to the application of what has been learned in a new situation and the application of rules, methods, principles, and theories. Terms used for it include calculation, discovery, correction, preparation, communication, display, and so on.

Analysis refers to the analysis of components and relationships, and the terms used for it include analysis, diagram, discrimination, inference, relation, separation, division, and so on.

Synthesis refers to resolving contradictions and combining parts to form a new whole with an emphasis on the formulation of new patterns of structures. Terms used for it include classification, composition, compilation, design, production, modification, planning, rearrangement, reorganization, and so on.

Finally, evaluation involves judging the value of materials collected for a specific purpose and setting criteria for evaluation. This part of learning is at the highest level in the cognitive hierarchy because it contains other elements as well as conscious judgments of value based on specific criteria. Terms used for it include comparison, conclusion, critique, explanation, justification, interpretation, summary, etc. (Bloom et al., 1984).

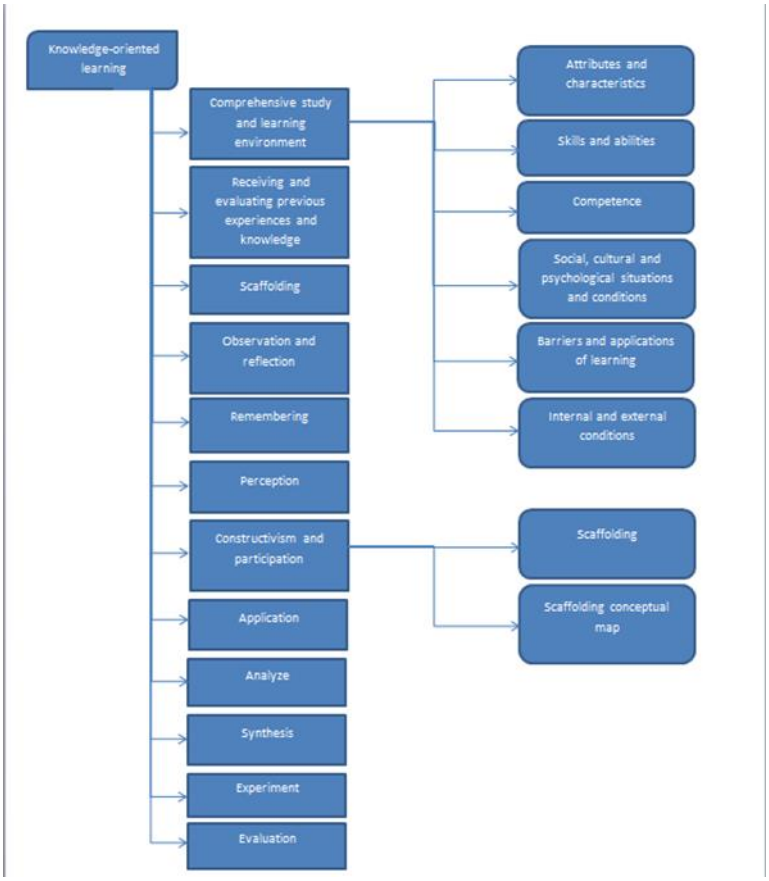
It should be noted that Bloom's taxonomy was further developed by thinkers and became known as the modified Bloom taxonomy. For example, Mayer (2002) proposed a modified classification with elements of memorization, perception, application, analysis, evaluation, and creation.

A modified classification with a broader perspective on learning focuses on both the acquisition of knowledge and the ability to use knowledge in a variety of contexts. It should be noted that the first element, ie memorization, is most related to retention, and the rest of the elements, including perception, application, analysis, evaluation, and close association with transmission (Mayer, 2002).

In the modified classification, the verb is used instead of the noun.

4. Provide a suggested framework for Knowledge- oriented learning

Throughout the present text, a review was conducted on topics related to learning from basics to related types and models and concepts, especially in the field of meaningful learning, which was closely related to the production and flow of knowledge to its application. A review of the resources and concepts presented showed that each of them has emphasized the creation of knowledge during the learning process and therefore from their summarization and development can provide a framework for knowledge-based learning. By reviewing and extracting the main components in the related models and concepts discussed in the present text and reviewing and prioritizing them, a framework was created as follows that can be developed from the proposed models.



References

Bada, S. O., & Olusegun, S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *Journal of Research & Method in Education*, *5*(6), 66-70.

Barzegar Befrooi, K., Khezri, H. & Shir Jahani, A. (2013). *The emergence of a constructivist approach and change in learning environments, the fourth conference of the Iranian Philosophy of Education Association, Mashhad* [in Persina] https://civilica.com/doc/336176

Bloom, B. S., Krathwohl, D. R., & Masia, B. B. (1984). Bloom taxonomy of educational objectives. In *Allyn and Bacon*. Pearson Education.

Chang, K. E., Sung, Y. T., & Chen, S. F. (2001). Learning through computer-based concept mapping with scaffolding aid. *Journal of computer-assisted learning*, *17*(1), 21-33.

Clark, R. W., Threeton, M. D., & Ewing, J. C. (2010). The Potential of Experiential Learning Models and Practices in Career and Technical Education and Career and Technical Teacher Education. *Journal of*

Career and Technical Education, *25*(2), 46-62.

Fox, R.(2001). Constructivism examined. *Oxford Review of Education*, *27*(1), 23-35.

Gibbons, P. (2002). *Scaffolding language, scaffolding learning*. Portsmouth, NH: Heinemann.

Güvenç, H., & Açikgöz, K. Ü. (2007). The effects of cooperative learning and concept mapping on learning strategy use. *Kuram ve Uygulamada Egitim Bilimleri*, *7*(1), 117.

Hay, D., Kinchin, I., & Lygo-Baker, S. (2008). Making learning visible: the role of concept mapping in higher education. *Studies in higher education*, *33*(3), 295-311.

Hammond, J., & Gibbons, P. (2005). What is scaffolding? *Teachers' voices*, *8*, 8-16.

Hosseini, Z. (2009). Participatory learning and critical thinking. *Iranian Journal of Psychologists*, 5 (19), 199-208. [in Persian]

Huitt, W. (2011). Bloom et al.'s taxonomy of the cognitive domain. *Educational psychology interactive*, *22*.

Illeris, K.(2009). A comprehensive understanding of human learning. *Contemporary theories of learning: Learning theorists... in their own words*, 7-20.

Jamei, Z. and Gheibi, M. (2021). A Study of Constructivist Theory in Student Learning, *Fifth International Conference on New Horizons in Humanities and Management, Tehran*, https://civilica.com/doc/1132085. [in Persina]

Jarvis, P. (2009). *Learning to be a person in society*. Routledge.

Kegan, R. (2009). What" form" transforms. *A constructive-developmental approach to transformative learning. Teoksessa K. Illeris (toim.) Contemporary theories of learning: learning theorists in their own words. Abingdon: Routledge*, 35-54.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, *4*(2), 193-212.

Maybin, J., Mercer, N., & Stierer, B. (1992). Scaffolding learning in the classroom. *Thinking voices: The work of the national oracy project*, 186-195.

Mayer, R. E. (2002). Rote versus meaningful learning. *Theory into Practice*, *41*(4), 226-232.

Panahi, G., Ghaedi, Y., Zarghami, S. and Abdullahi, M. (2017). Explain the philosophy of learning with an emphasis on winch learning theory. *Research in learning systems*, (36). 181- 208. [in Persina]

Rahmani, Zahra (2017). Learning Psychology. Retrieved on (25/10/1399) from: https://amouzesh.tbzmed.ac.ir

Valiathan, P. (2002). Blended learning models. *Learning circuits*, *3*(8), 50-59.

Voorhees, R. A. (2001). Competency-Based learning models: A necessary future. *New directions for institutional research*, *2001* (110), 5-13.

Zarei, E. (2014). Knowledge and Learning: Fundamentals of Communication Theory. Information and Communication, 1 (3 and 4), 141-152. [in Persina]