

CONCEPT MAPPING; RATIONALE OF LEARNING THEORIES

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ABSTRACT... The explanations of different concepts of learning are called theories and approaches towards the learning process. The difference of concepts is based on interpretations of learning rather than the definition of learning. Five major learning theories: behaviorists, humanists, cognitivists, social cognitivists and constructivists exist, which explore the process of learning. In this paper, the concept maps of all these theories will be discussed separately. The overarching linkages between the theories shown in the concept maps will also be explained.

Key words: Behaviorist Learning Theory, Humanist, Cognitivist, Constructivist.

INTRODUCTION

The vase of learning is decorated with different colorful concepts that highlight its different and unique shades in remarkable ways. These concepts of learning have been presented by various researchers, educationists, psychologists and philosophers. The explanations of different concepts of learning are called theories and approaches towards the learning process. The difference of concepts is based on interpretations of learning rather than the definition of learning¹. Almost all theories of learning, according to Shunk², aim to answer the following questions:

1. How does learning occur?
2. Which factors influence learning?
3. What is the role of memory?
4. How does transfer occur? and
5. What types of learning are best explained by the theory?

And for the instructional designers, the list is expanded with the following questions:

6. What basic assumptions/principles of this theory are relevant to the instructional design?
7. How should instructions be structured to facilitate learning?

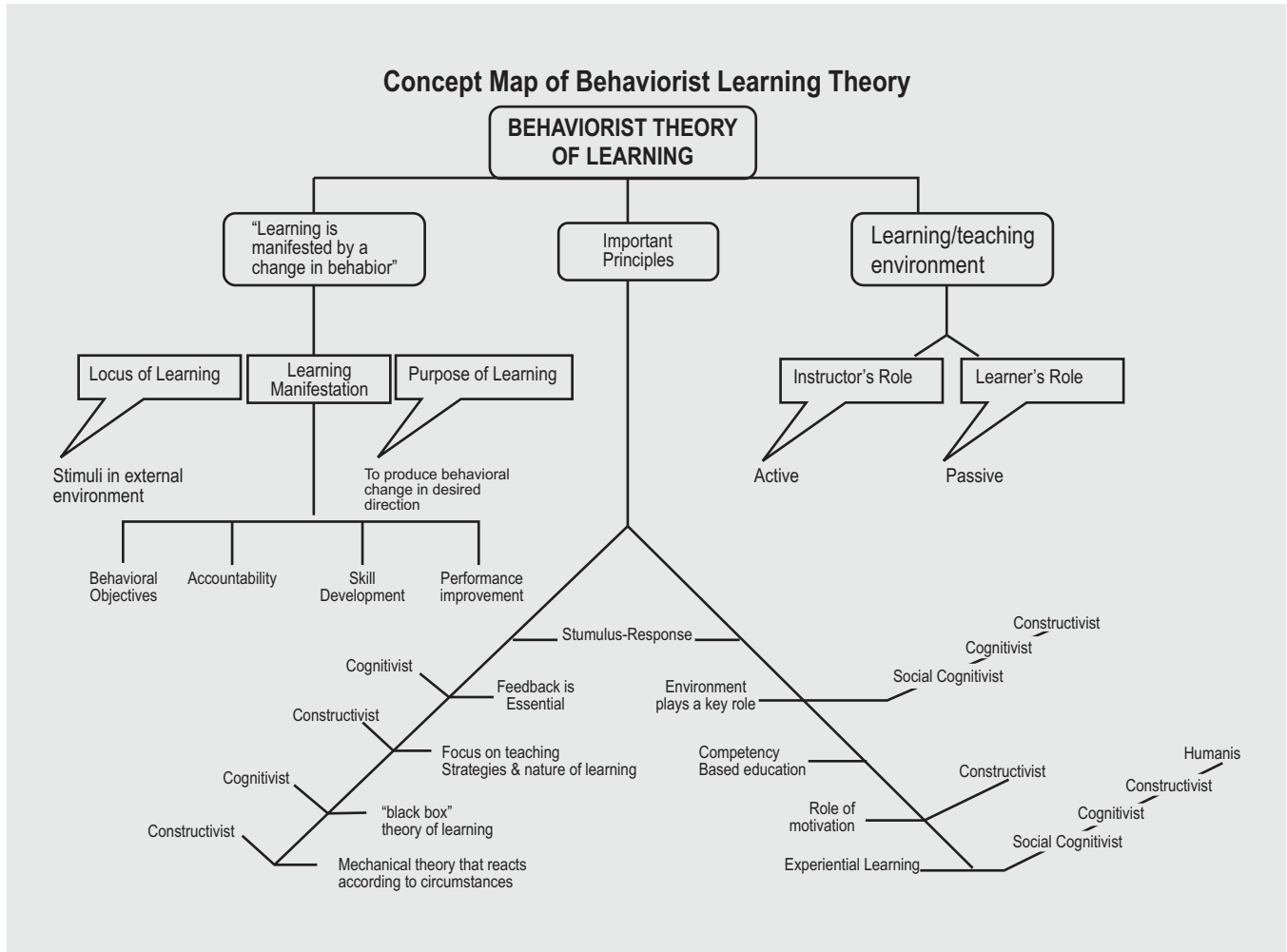
The answers to these questions explain how one learning theory differs from others. Five major learning theories: behaviorists, humanists, cognitivists, social cognitivists and constructivists exist, which explore the process of learning. Though the interpretations of learning presented by all the theories are different, there

are some similar points that link these theories with each other. In this paper, the concept maps of all these theories will be discussed separately. The overarching linkages between the theories shown in the concept maps will also be explained.

Rationale of Behaviorist Learning Theory

The basic assumption of behaviorist learning theory is that learning is manifested by a change in behavior. Behaviors can be changed, modified or acquired through conditioning (classical conditioning, operant conditioning) and the source of the principle of conditioning is environment³. The external environmental factors play a significant role in the learning process. Another key principle of behaviorist discourse is the connections between stimulus and response. The responses can be strengthened or decreased by applying the rules of positive or negative reinforcement. Positive reinforcement is necessary for the development of desired skills and performance of the learner and the purpose of learning is always to produce behavioral change in the desired direction⁴.

In the classrooms following the principles of behaviorism, the teacher plays the traditional role of a trainer rather than of a facilitator. He is always active and is considered a whole authority in the class. He provides stimulus material to the students and usually adopts drilling and practice methods to bring a desired behavioral change in the students⁵. The role of student is of the receiver of information who keeps on repeating unless he learns the desired information.



Rationale of Humanist Learning Theory

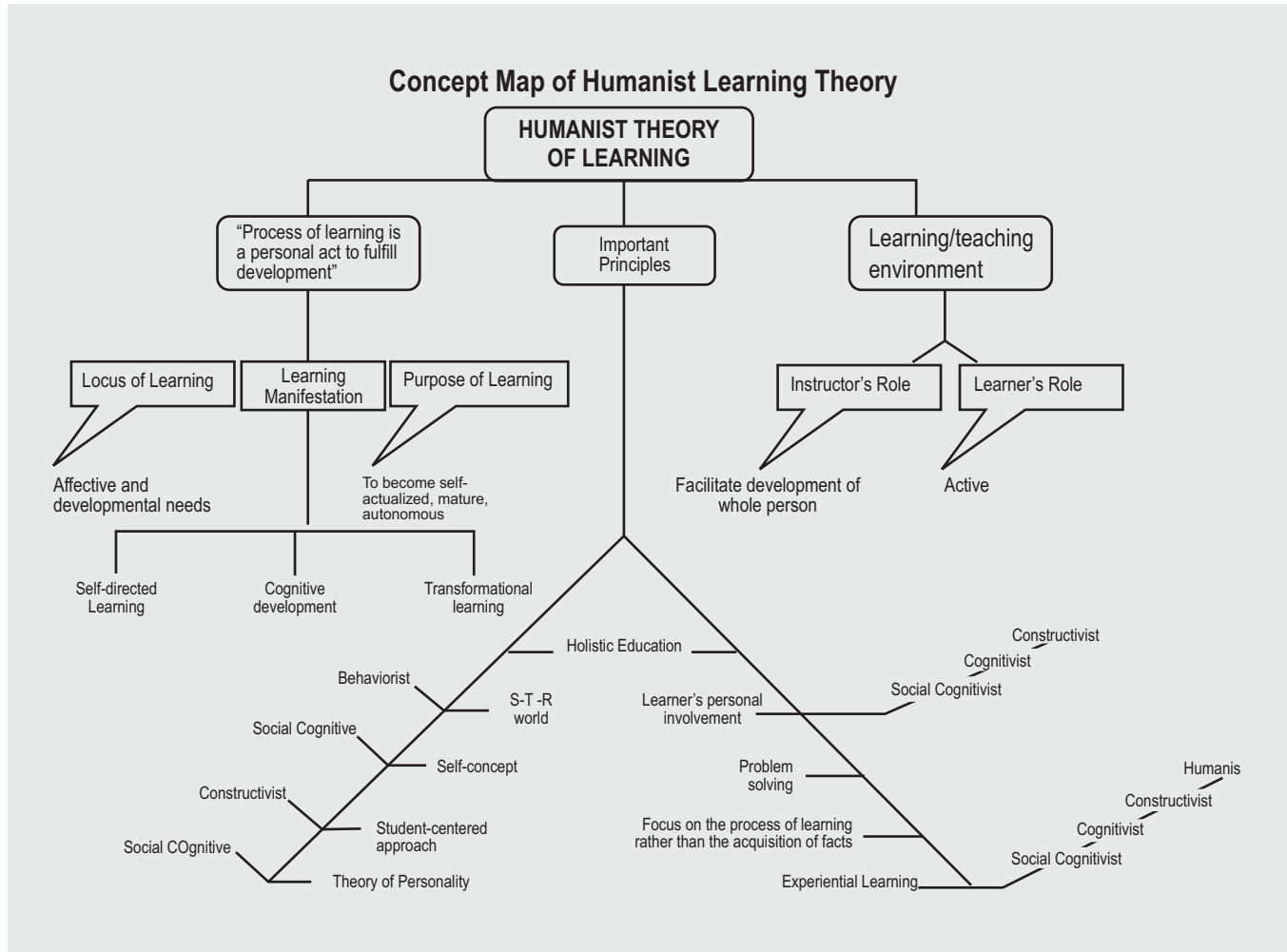
Humanist theory came into being as a reaction to the behaviorist theory of learning. Humanists believe in the freedom, autonomy, self-potential and dignity of human beings. The basic concept of humanist may be elaborated best in the words of Elias & Merriam⁶:

“Human beings are capable of making significant personal choices within the constraints imposed by heredity, personal history, and environment”

Learning, according to humanist, is a personal act to fulfill one’s own potential and development³ and the purpose of learning is “to develop self-actualizing persons”⁷, and in the words of Valett⁸, “to develop individuals who will be able to live joyous, humane, and meaningful lives”. So, learning is self-directed where learner learns how to learn and takes learning as a process rather than an end

product. The humanists also believe in individual locus of control and the learner learns best when he is intrinsically motivated.

In the humanists’ classrooms, the teacher plays the role of a facilitator whose goal is to develop self-actualized, mature and autonomous persons⁹ by following the student-centered approach. The learning environment is cooperative, congenial and supportive where cognitive and affective needs of the learner are the major focus⁹. The role of students is very important; his personal involvement determines the success of learning. The word “self” is the hallmark of humanist learning theory and subjectivity is more important than objectivity.



Rationale of Cognitivist Learning Theory

Cognitive learning theory is again a rejection to the basic concepts of behaviorism. Cognitivists compare human brain with computer machine. For them, the human brain plays a unique role of incredible network of information processing (including insight, memory, perception and metacognition) influenced by both intrinsic and extrinsic factors when learning takes place. The purpose of learning is to build up the ability and skills to learn effectively⁹. There are two key concepts of this theory:

“(1) that the memory system is an active organized processor of information, and (2) that prior knowledge plays an important role in learning”¹⁰.

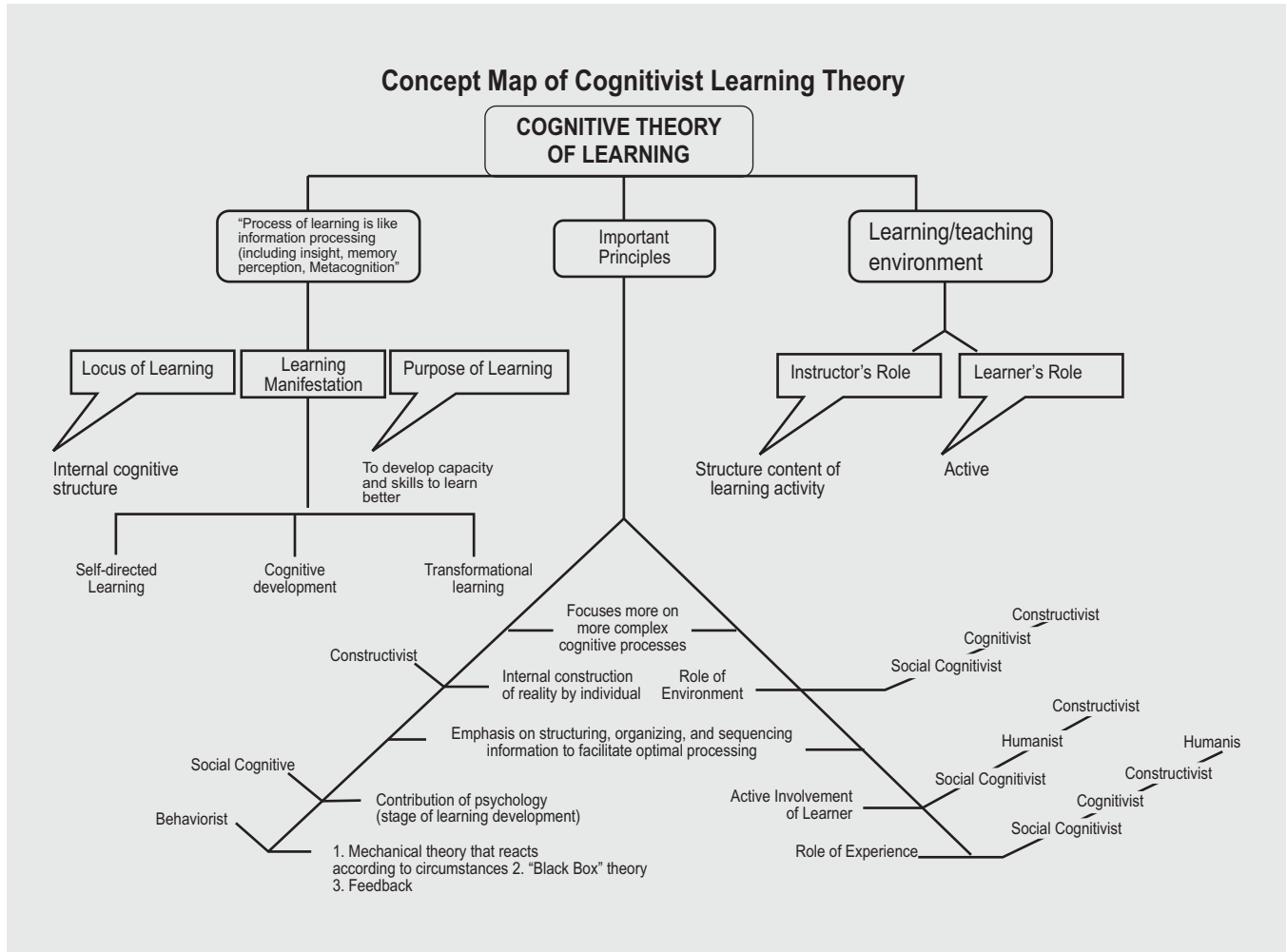
According to the Cognitivists, the development of cognitive structure is dependent upon the age, experience and social roles of the learner. Intelligence,

learning and memory keep on developing from birth to adulthood. In this regard, Jean Piaget, the major contributor of the Humanism, introduced the Four-Stage theory of Cognitive Development in human¹¹. These stages are:

1. Sensorimotor: Birth to 2 years old
2. Pre-operational: 2 to 7 years old
3. Concrete operation: 7 years old to adolescence
4. Formal operation: Adolescence to adult

These stages throw light upon the cognitive development of human mind with reference to the learning.

The role of instructor is again of a facilitator of learning and learner is the focus of learning and teaching process and "learners are not simply passive recipients of information; they actively construct their own understanding"¹².



Rationale of Social Cognitivist Learning Theory

Social cognitive learning theory, developed from the strands of behaviorism and cognitivism, explain that learning acquisition related to the observation of others in the social contexts⁹. In the process of learning, the change in behavior is determined by triangular relationships between ongoing reciprocal interaction of the person, already learnt behavior and environment. These three factors are the locus of learning and influence one another constantly¹³. The purpose of learning is to learn new roles and behaviors in the particular environment.

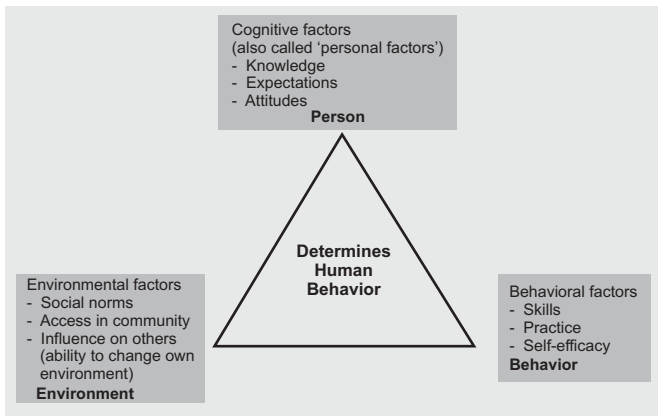
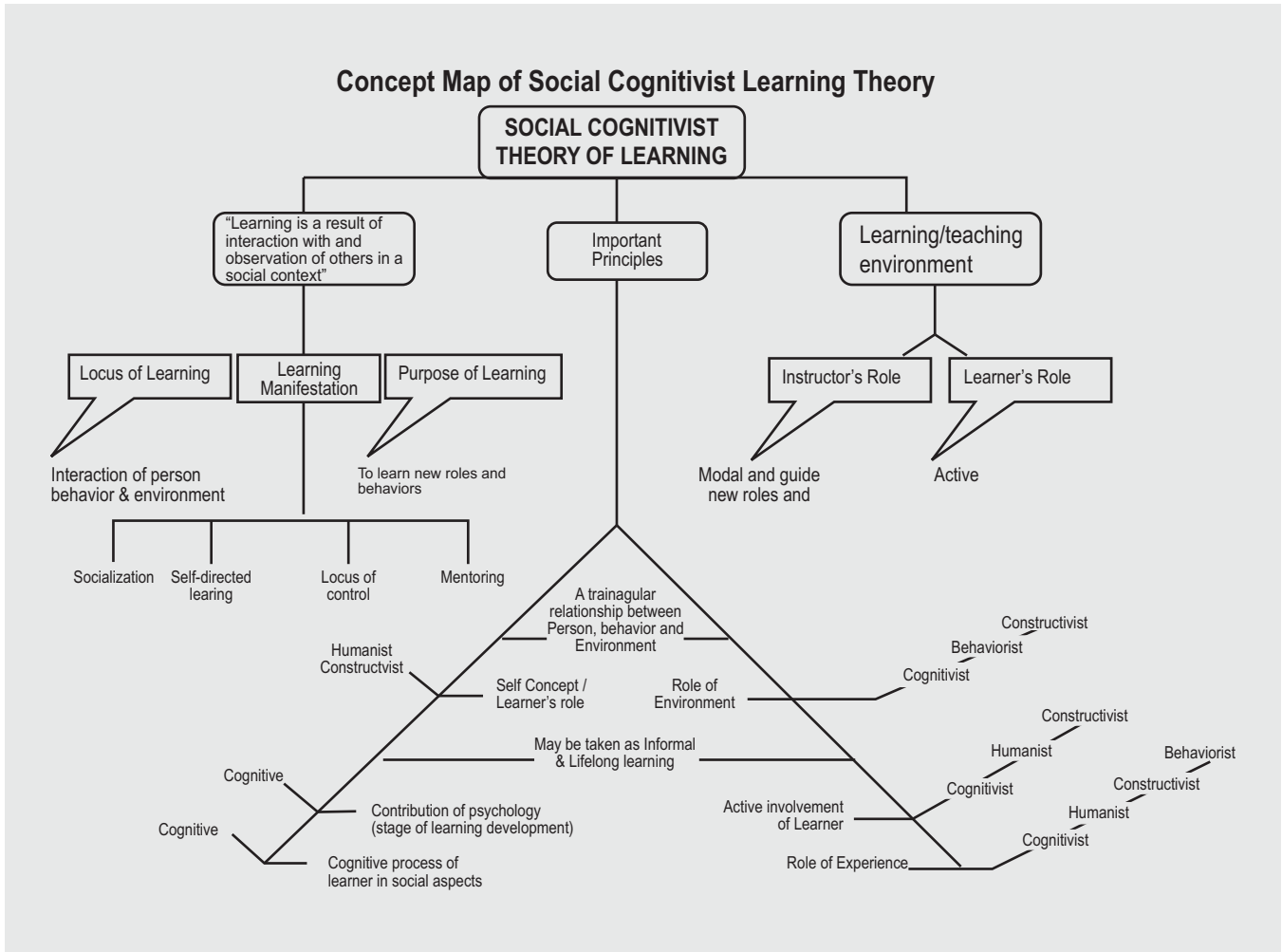
Active involvement of the learner makes the learning a self-directed phenomenon dependent upon the social context leading towards acquiring, modeling and maintaining certain behavioral patterns. Bandura¹⁴ include four components or conditions that are

necessary for Behaviour modeling. They are attention; retention; motor reproduction; and motivation¹⁴. Effective learning depends upon the sequenced roles of these conditions/components. Learning, in this sense, is a lifelong process in which a person learns both formally and informally throughout the life.

In education, both teachers and students have to play an active role. The teachers are responsible to build the high self-efficiency levels in their students and students' involvement is essential to learn new facts.

Rationale of Constructivist Learning Theory

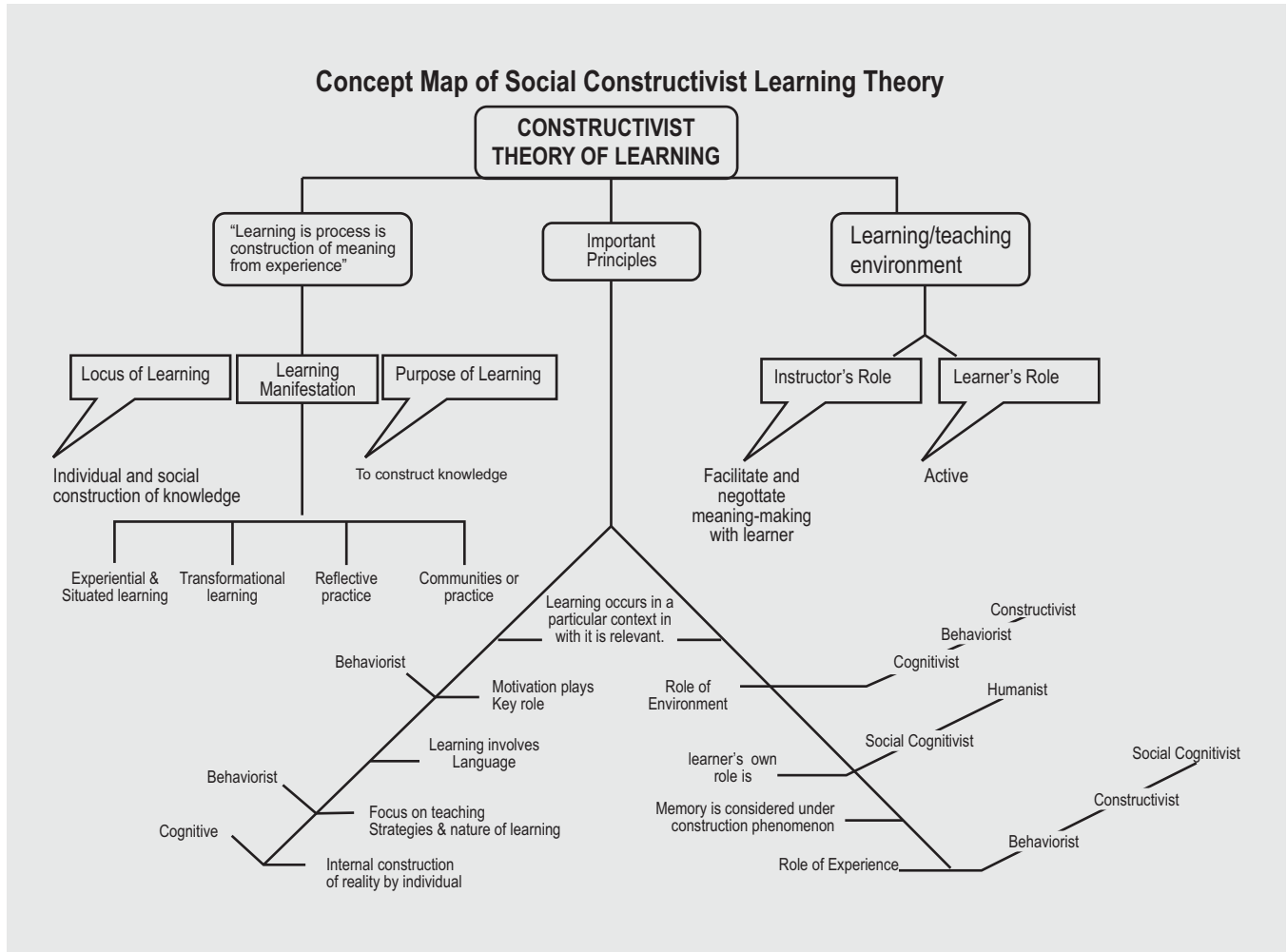
“Constructivist stance maintains that learning is a process of constructing meaning; it is how people make sense of their experience¹³. The construction of personal meaning takes place in the form of modifying, adding or discarding previous information/knowledge and



experience of the learner. Context dependency is the major characteristic in constructivism and learning in this way becomes a type of discovery learning¹⁵ and individual and social constructions of knowledge become the locus of learning⁹. When learner comes across new

situation, his memory becomes activated to construct and reconstruct the meaning of it. In this way, memory is considered an under-construction property, which is triggered, by the experience and environment¹ and learning in this way becomes transformational, experiential and situated.

The role of a teacher, in constructivist theory, is very important as he is supposed to develop the abilities of students helping in constructing knowledge rather than reproducing a series of facts. He organizes problem-solving, inquiry based activities that enable the learner to become self learners in a collaborative learning environment. Here the student is an active participant and his involvement determines the success of the learning process.



CONNECTION BETWEEN LEARNING THEORIES: A RATIONALE Environment

The role of environment is a pivotal concept in behaviourism, cognitivism, social cognitivism and constructivism. In behaviorism, learning is based on the rule of conditioning that takes place in the environment¹⁰. The motivation is always external because a learner learns through repetition and his learning is strengthened by the reinforcement that is again an environmental factor. In cognitivism, the environmental conditions facilitate the learning process. The cognitive structure of student is developed effectively if the environmental conditions are conducive to them¹. In the triangle of social cognitivism, the role of environment is very crucial because learning takes place through interactions between person and society or environment. One of the major principles of constructivism is that collaboration

and social negotiation amongst learners is very important to construct the meaning¹⁵ and these are done in the environment. So, the role of environment in all these four learning theories is very significant.

Experience of the learner

Another connection amongst all learning theories is the role of experience in the learning process. In behaviorism, learning is a permanent behavioral change due to experience because the experience of learner strengthens or weakens the stimulus and response connections¹⁶. In humanist orientation, learning goal is self-actualization that focuses the actual lived experiences of the learner that motivates him intrinsically. The cognitivists associate learning with a permanent change in mental associations focusing on the actual experience of the learner¹⁷. Piaget's stages of cognitive development show that expansion of learning

depends upon the maturity of the learner and this maturity is associated with age and experience of the learner. Out of three basic pillars of Social-cognitivism, the role of personal experience of the learner is very significant and the individual's experience can provide "converge with other behavioral and environmental factors of the learner"¹⁸. Role of experience is again a pivotal concept in constructivism where learning is what the learner constructs from his experiences. The constructivists strongly believe in the idea that "what we know of the world stems from our own interpretations of our experiences"¹.

Motivation

Role of motivation is another striking point that connects various theories in many ways. Motivation is present in almost all theories but the type of motivation may vary. For instance, in behaviourism, due to the too much focus on environment, motivation is external. In humanism, Maslow gives a complete hierarchy of needs to explain the concept of motivation, however, they believe in the intrinsic motivation that comes from the inner self of the learner. In cognitive theory of learning, the inner mental structure of the students is involved and students are taught how to learn. So motivation in such type of learning will be intrinsic that will create goal-seeking acts in the learners¹⁹. In social cognitive and constructivist theory of learning, due to the involvement of environmental factors and cognitive level of the learners, motivation is both intrinsic and extrinsic.

Teacher as a facilitator

Teacher's role, as discussed in all theories and concept maps, is very important in almost all learning theories. In humanism and cognitivism the role of teacher is of a facilitator who helps students to become the self-learner maintaining their freedom. In constructivism and social cognitivism a teacher is a facilitator but different from humanist and cognitivist teacher. Here, he facilitates the learner by involving himself and his students in the learning process.

Feedback

Another link between the theories especially between behaviorism and cognitivism is the concept of feedback. The behaviorists use feedback for reinforcement to

improve the performance of the learner in a desired manner²⁰ and the cognitivist use feedback for the guidance and mental connection support of the learners¹.

Behaviorism and Cognitivism- The black box theories

Another similarity point between behaviorism and cognitivism is that both theories are regarded as "black box" and what happens in the box is unknown. Both theories tell that learning occurs but what happens when learning occurs, is ignored by both. "For behaviorism, the "black box" is the explanation between stimulus and response. In cognitivism, it is how the central executive works or what controls the working memory"²¹.

Behaviorism and Cognitivism: mechanistic and deterministic

In both behaviorism and cognitivism, learners are taken as the mechanical machines that respond according to the situations or circumstances. Behaviour, in behaviorism is predicted according to the stimulus-response situations, and in cognitivism is the form of "information inputted into the computer machines"²¹. These processes seem automatic and machine like which ignore other contexts.

Cognitive process of the learner

The cognitive process of the learner is considered very significant both in cognitive and social cognitive theories of learning. In cognitivism, the development of cognitive structure is everything in learning process; they focus on more complex cognitive processes such as thinking, problem solving, concept formation and information processing²². Whereas in social cognitive theory, the cognitive processes of the learner is discussed in social aspects and learner's cognitive structure is taken as 'some' and not the 'whole'.

Theories of personality

Humanist and social cognitive theories of learning are called the theories of personality²³ because both theories tend to highlight the personality traits and its role in learning process in one or the other way. They are of the view that personal meaning facilitates process of learning. The humanist believe in the free-will of human

and focuses on the concept of “self” in numerous manners while the cognitivists bring to light another personality trait that is mental structure and its functioning in learning process.

Learning stages

Jean Piaget¹¹ presented four stages of cognitive development that play very important role in learning and these stages are the foundation steps of learning. The canvass of learning widens when a child moves from sensorimotor to pre-operational then to the concrete operation and finally to the formal operation stage. Similar types of stages, in learning process, are described by the Bandura¹⁴ in social cognitive theory. He describes his four stages as attention, retention or memory, behavioral rehearsal and motivation. One stage follows the next and in this way meaningful learning takes place.

Role of learner

In all aforementioned theories except behaviorism, the role of the learner is very active. Humanism revolves around the one notion of ‘free-will’ and ‘self-development’ which aims to make the learner self-actualized, intrinsically motivated and independent learner. The cognitivists also involve students and enable them to become the self-learners. Social-cognitivists and constructivists encourage students both intrinsically and extrinsically and always apply the student-centered approach.

Summary

In behaviorism, the concept of stimulus-response, positive and negative reinforcement for behavioural repetition is not new in the local cultural context but the idea that behavioral repetition can be meaningful if it is joined by the concept of personal involvement of the learner in a meaningful way is very interesting and practical. The concepts of ‘Self’, in humanism, is another striking feature of learning that is very helpful in the adult-learning process because adult-learner must be intrinsically motivated to attain the goal of self-actualization in the learning process. Cognitivism is impressive in a sense it compares human brain with computer. The role of memory and complex cognitive structure of human mind and its functioning and

development according to the age of learner is elaborated in a very interesting way but to apply the rules of cognitivism in learning process is not easy for teachers because it takes effort and time to understand the cognitive level of each student in the classroom and arrange activities according to their cognitive level. The social-cognitive theory seems “easier to be applied” in context of education in Pakistan as it combines the positive aspects of behaviorism and impresses upon points of cognitivism. The triangular relationship seems the linking points of behaviorism, cognitivism and humanism. The constructivist theory of learning highlights the working of human mind in the social contexts. The principles of constructivism can be applied fully at higher levels of education where the learner can change, modify his previous knowledge in the new contexts. His ability to construct meanings involves his cognitive structure in the social context which makes learning a meaningful process.

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