

UNIT- III

THEORY OF CONSTRUCTIVISM AND LEARNER CENTERED TEACHING

MEANING

Learning is construction of knowledge, which is based on the idea that learning occurs when a learner actively constructs a knowledge representation in working memory. According to this view; the learner is a sense maker whereas the teacher is a cognitive guide who provides guidance and modeling an authentic task. The instructional designer's role is to create environments in which the learner interacts meaningfully with academic material, including fostering the learner's processes of selecting, organizing and integrating information.

Learning activities in constructivist settings are characterized by active engagement, inquiry, problem solving and collaboration with others rather than a dispenser of knowledge a teacher is a guide, facilitator and co-explorer, who encourage learners to question, challenge and formulate their own ideas, opinions and conclusions.

DEFINITIONS

According to Cannella &Reiff, 1994, "Constructivism is an epistemology, a learning or meaning-making theory that offers an explanation of the nature of knowledge and how humans learn. It maintains that individuals create or construct their own understandings or knowledge through the interactions and activities with which they have contact".

According to Kroll &Boskey, 1996 "Knowledge is acquired through involvement with content instead of imitation or repetition".

According to Wolffe and McMullen, 1996, "Constructivism is primarily a theory of learning, not a theory of teaching."

TYPES OF CONSTRUCTIVISM

There are different types of constructivism that educators can use to find success with this learning theory.

Cognitive: Cognitive constructivism focuses on the idea that learning should be related to the learner's stage of cognitive development. These methods work to help students in learning new information by connecting it to things they already know, enabling them to make modifications in their existing intelligence to accommodate the new information. Cognitive constructivism comes

from the work of Jean Piaget and his research on cognitive development in children.

Social: Social constructivism focuses on the collaborative nature of learning. Knowledge develops from how people interact with each other, their culture, and society at large. Students rely on others to help create their building blocks, and learning from others helps them construct their own knowledge and reality. Social constructivism comes from Lev Vygotsky, and is closely connected to cognitive constructivism with the added element of societal and peer influence.

Radical: Radical constructivism is very different from cognitive and social constructivism. It focuses on the idea that learners and the knowledge they construct tell us nothing real, only help us function in our environment. The overall idea is that knowledge is invented, not discovered. The things we bring to the table make it impossible for us to have truth, only interpretations of knowledge. This theory was developed by Ernst von Glasersfeld in 1974.

CONSTRUCTIVISM IN EDUCATION

It's important to understand how teachers can apply constructivism inside their classroom to create a unique learning environment for students. In constructivist classrooms, the teacher has a role to create a collaborative environment where students are actively involved in their own learning. Teachers are more facilitators of learning than actual instructors. Teachers must work to understand the preexisting conceptions and understanding of students, then work to incorporate knowledge within those areas. Teachers will also need to adjust their teaching to match the learner's level of understanding.

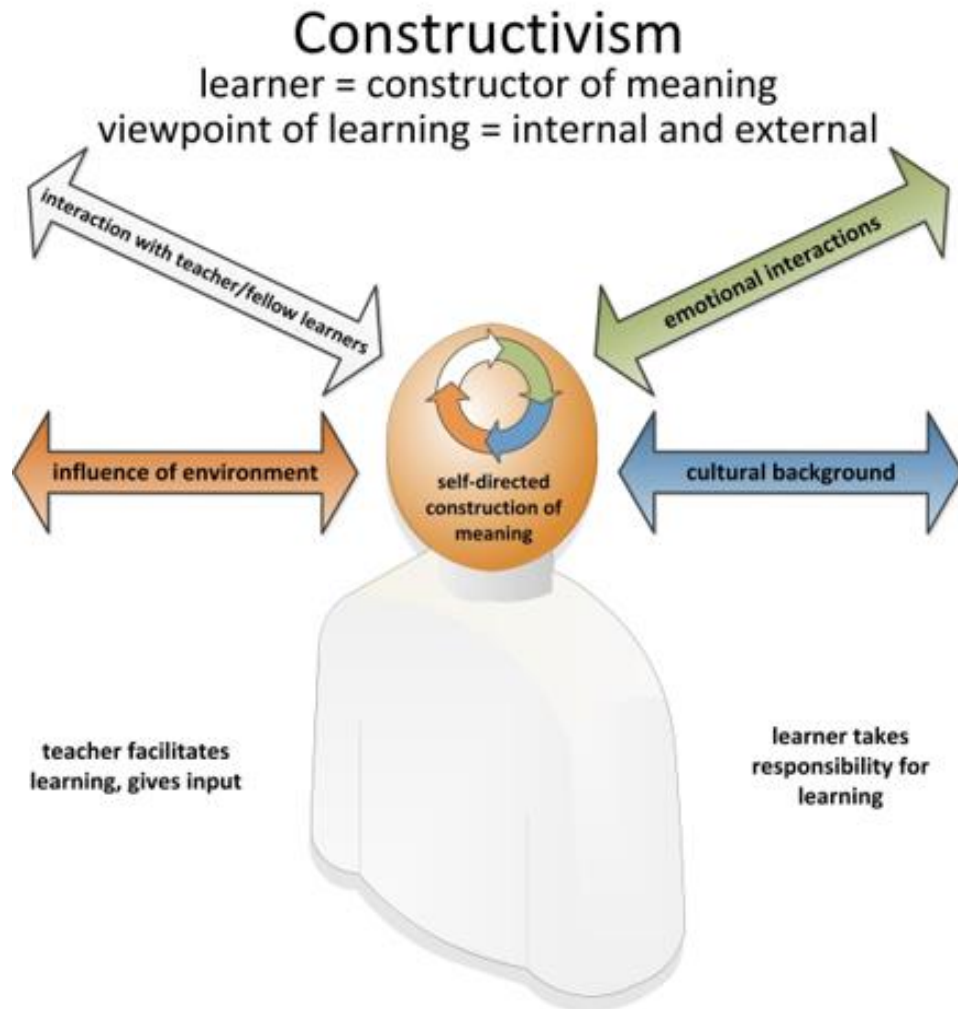
Constructivist classrooms rely on four key areas to be successful:

- Shared knowledge between teachers and students.
- Shared authority between teachers and students.
- Teachers act as a guide or facilitator.
- Learning groups consist of small numbers of students.

Constructivist classrooms are often very different from normal classrooms in many ways. Constructivist classrooms focus on student questions and interests, they build on what students already know, they focus on interactive learning and are student-centered, teachers have a dialogue with students to help them construct their own knowledge, they root in negotiation, and students

work primarily in groups.

Constructivist classrooms often have teachers who do small group work, collaborative and interactive activities, and open dialogues about what students need in order to find success.



PRINCIPLES OF CONSTRUCTIVISM:

There are many specific elements and principles of constructivism that shape the way the theory works and applies to students. Learn about the different principles of constructivism and how they make up the whole theory.

Knowledge is constructed:

This is the basic principle, meaning that knowledge is built upon other knowledge. Students take pieces and put them together in their own unique way, building something different than what another student will build. The student's previous knowledge, experiences, beliefs, and insights are all

important foundations for their continued learning.

People learn to learn, as they learn. Learning involves constructing meaning and systems of meaning. For example, if a student is learning the chronology of dates for a series of historical events, at the same time they are learning the meaning of chronology. If a student is writing a paper about history, they are also learning principles of grammar and writing as well. Each thing we learn gives us a better understanding of other things in the future.

Learning is an active process:

Learning involves sensory input to construct meaning. The learner needs to do something in order to learn, it's not a passive activity. Learners need to engage in the world so they are actively involved in their own learning and development. You can't just sit and expect to be told things and learn, you need to engage in discussions, reading, activities, etc.

Learning is a social activity:

Learning is directly associated to our connection with other people. Our teachers, our family, or peers, and our acquaintances impact our learning. Educators are more likely to be successful as they understand that peer involvement is key in learning. Isolating learning's isn't the best way to help students learn and grow together. Progressive education recognizes that social interaction is key to learning and they use conversation, interaction, and group applications to help students retain their knowledge.

Learning is contextual:

Students don't learn isolated facts and theories separate from the rest of our lives—we learn in ways connected to things we already know, what we believe, and more. The things we learn and the points we tend to remember are connected to the things going on around us.

Knowledge is personal:

Because constructivism is based on your own experiences and beliefs, knowledge becomes a personal affair. Each person will have their own prior knowledge and experiences to bring to the table. So the way and things people learn and gain from education will all be very different.

Learning exists in the mind:

Hands-on experiences and physical actions are necessary for learning, but those elements aren't enough. Engaging the mind is key to successful learning. Learning needs to involve activities for the minds, not just our hands. Mental experiences are needed for retaining knowledge.

Motivation is key to learning:

Students are unable to learn if they are unmotivated. Educators need to have ways to engage and motivate learners to activate their minds and help them be excited about education. Without motivation, it's difficult for learners to reach into their past experience and make connections for new learning.

THE NATURE OF CONSTRUCTIVIST LEARNER

The Importance of Constructivist Learner:

Constructivism promotes social and communication skills by creating a classroom environment that emphasizes collaboration and exchange of ideas. Students must learn how to articulate their ideas clearly as well as to collaborate on tasks effectively by sharing in group projects.

Social constructivism -encourages culturalism the learner to arrive at their version of the truth, influenced by his or her background, culture or embedded worldview.

In order to apply social constructivism theories in the education arena, teachers and school leaders need to shift and reshape their perspectives. Both must move from being “people who teach” to being “facilitators of learning.” A good constructivist teacher is one who questions students’ answers, without regard to whether they are right or wrong, to make sure the student has a good grasp of the concept. Additionally, instructors should have their students explain the answers they give and not allow students to use words or equations without explanations. They should also encourage students to reflect on their answers.

Social constructivism teaches that all knowledge develops as a result of social interaction and language use, and is therefore a shared, rather than an individual, experience. Knowledge is additionally not a result of observing the world, it results from many social processes and interactions. We therefore find that constructivist learning attaches as much meaning to the process of learning as it does to the acquisition of new knowledge. In other words, the journey is just as important as the destination.

The process of learning requires that the learner actively participate in creative activities and self-organization. Teachers should allow their students to come up with their own questions, make their own theories, and test them for viability. Moreover, those who practice constructivist theory find that imbalance facilitates learning, in the sense that contradictions between the learner’s current understanding and experiences create an imbalance, which leads the learner to inquire into his or her own beliefs and then try out

new ideas. Instructors should therefore encourage errors resulting from the learners' ideas, instead of minimizing or avoiding them.

Students should also be challenged by their instructors to perform open-ended investigations, working to solve problems with realistic and meaningful contexts. This activity enables the learner to explore, and come up with either supporting or conflicting possibilities. Contradictions need to be investigated, clarified, and discussed.

Learner is Responsible:

It is argued that the responsibility of learning should reside increasingly with the learner. Social constructivism thus emphasizes the importance of the learner being actively involved in the learning process, unlike previous educational viewpoints where the responsibility is rested with the instructor to teach and where the learner played a passive, receptive role.

High Motivation is must:

The most crucial thing regarding the nature of learner is that they should have high motivation for learning. According to Von Glaserfeld (1989), sustained motivation to learn is strongly dependent on the learner's confidence in their potential for learning.

Learner is Active:

The student is the person who creates new understanding for themselves. The teacher coaches, moderates, suggests but allows the students room to experiment, ask questions, learning activities require the students' full participations. An important part of the learning process is that students reflect on, and talk about their activities. Students are also helped set their own goals and means of assessment.

Learning is Reflective:

Students control their own learning process and they lead the way by reflecting on their experiences. This process makes them experts of their own learning. The teacher helps to create situations where the students feel to ask questioning and reflecting on their own processes.

Collaborative Learning:

There are many reasons for collaboration which contributes to learning. The main reason in constructivism is that students learn about learning not only by themselves, but also from their peers. When

students review and reflect on their learning they can pick up strategies and methods from one another.

Enquiry Based Learning:

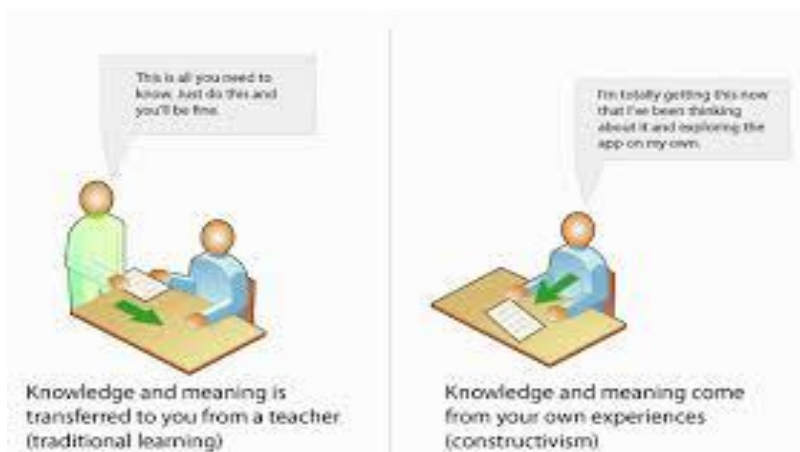
The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers.

THE ROLE OF TEACHER IN THE CONSTRUCTIVIST CLASSROOM

Teacher encourages students' initiatives and gives freedom and encouragement.

- The teacher asks open-ended questions and waits for responses.
- Teacher emphasizes higher-level thinking and reasoning.
- Students are engaged in dialogue with the teacher and with each other.
- Teacher encourages reciprocal learning environment in the classroom.
- Teacher emphasizes on inquiry-based learning.
- There is emphasis on problem-based learning.
- Cognitive apprenticeships, various methods involving collaboration or group work, co-operative learning (reciprocal questioning, Jig-saw classroom, structured controversies) are emphasized.

The Role of Teacher In The Constructivist Classroom



The Role of Teacher

The primary responsibility of the teacher is to create a collaborative problem-solving environment where students become active participants in their own learning. From this perspective, a teacher acts as a facilitator of learning rather than an instructor.

The teacher makes sure he/she understands the students' preexisting conceptions, and guides the activity to address them and then build on them (Oliver, 2000).

Scaffolding is a key feature of effective teaching, where the adult continually adjusts the level of his or her help in response to the learner's level of performance.

In the classroom, scaffolding can include modeling a skill, providing hints or cues, and adapting material or activity (Copple & Bredekamp, 2009).

The following are four phases in planning and implementing co-operative learning lessons.

1. Making decisions before the lesson begins,
2. Setting the lesson,
3. Monitoring and interviewing during group work;
4. Evaluating the product and the process of group work.

1. Making decision before the lesson begins

The teacher is required to formulate academic and social objectives to be realized by students through the co-operative lesson. Academic objectives refer to content, subject matter and the skills to be learnt. Social objectives refer to the social interaction skills to be acquired by the students.

2. Setting lesson The teacher explains the academic task to the members of the group. He/she also explains to them that they are to accomplish the academic task and to develop social skills too. The teacher needs to ensure that students comprehend their learning task before they begin.

3. Monitoring and intervening the during group work

While the students of working, the teacher needs to move around in the class room with a view to monitoring students progress and to intervene if necessary. if the teacher finds that the student facing difficulty in accomplishing the task, they may intervene to provide them assistance in accomplishing to task and help them to overcome the problem.

4. Evaluating the product and process of group work

The teacher needs to provide opportunities to students to evaluate the accomplishment of the academic task and the development of social skills on the part of the students.

NATURE OF LEARNING PROCESS

Constructivist theory states that knowledge is constructed by the learner in working memory. In this construction process the learner uses both incoming material from the environment and prior knowledge from long term memory. SOI model is a theory of learning that can be used to generate instructional implications. This is called SOI model to highlight the crucial cognitive processes, S for selecting, O for organizing and I for Integrating.

Selecting relevant information:

The first process is the selection of relevant information for further processing. When words and pictures are presented to learn in an instructional message, the learner represents them briefly in sensory memories, because of the limited capacity of the human information processing system.

Organizing incoming information:

The selected auditory representation is organized into a coherent verbal representation and the selected images are organized into a coherent pictorial representation. In this process the retained visual images are connected by appropriate links (such as cause and effect); likewise the retained verbal representations are also connected. This activity takes place in working memory. The outcome of this process is the construction of the coherent pictorial representation and a coherent verbal representation.

Integrating incoming information:

In this process students make one to one connections between corresponding elements of the pictorial and verbal representations they have constructed using prior knowledge. A final step in learning process is encoding in which the mental representations constructed in working memory are stored in long-term memory for permanent retention.

PEDAGOGICAL APPROACHES TO CONSTRUCTIVISM

Learning involves combining what we know with what was taught, or continually connecting prior knowledge with new information. This prior knowledge can facilitate, inhibit or transform learning. Teachers need to surface students' prior knowledge, connect to it and allow students to build from and onto their prior knowledge. In order for the students to make use of ideas taught by teachers in the way teachers intend, knowledge must be presented as intelligible, fruitful and plausible. This is a move away from a discovery approach, where students construct knowledge solely based on their own experience to knowledge construction where students have the opportunity to test their knowledge within a social context.

The social aspect of knowledge provides clear implications for practice. Learning is seen to be an active process of knowledge construction and sense making. Beyond that, knowledge is understood as a cultural artifact of people. It is created and transformed by each individual and by groups of people. Participating in community discourse allows students to clarify, defend, elaborate, evaluate and argue over the knowledge constructed. Many teachers use cooperative learning as a route to building community discourse in their classrooms.

The broader knowledge base for teaching, which included content knowledge, Pedagogical Content Knowledge (PCK), curriculum knowledge, general pedagogy, learners and their characteristics, educational contexts and educational purposes involves the transformation of content knowledge by teachers in different ways that allow the learners to construct knowledge during classroom practice. Teachers derive PCK from their understandings of content, their own teaching practice and their own schooling experience. As such PCK is closely intertwined with both content knowledge and pedagogical process knowledge. Research in pedagogical content knowledge reinforces the research in cognitive science. Teacher education programmes can enhance the development of PCK in student teachers by modeling and sharing teaching decisions and strategies with students. Faculty should have opportunities to demonstrate and reflect on how they use PCK in their own teaching.

Although it is difficult to separate PCK from content knowledge, a thorough and coherent understanding of content is necessary for effective PCK. Teacher education programmes can assist pre-service teachers in constructing a deep understanding of disciplinary content from a teaching perspective. A teacher education programme which balances attention to the process of learning with the content being learned can ultimately result in helping teachers be able to understand better both their content and the learning of their students. Often content is taught without any attention to process, or process is taught without a deep understanding of the content involved.

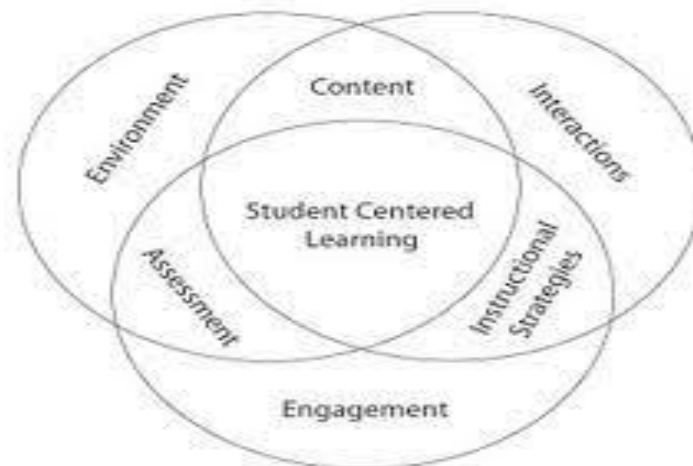
THE PEDAGOGICAL (i.e TEACHING) GOALS OF CONSTRUCTIVIST CLASSROOMS

Honebein (1996) summarizes the seven pedagogical goals of constructivist learning environments:

- 1) To provide experience with the knowledge construction process (students determine how they will learn).
- 2) To provide experience in and appreciation for multiple perspectives (evaluation of alternative solutions).
- 3) To embed learning in realistic contexts (authentic tasks).
- 4) To encourage ownership and a voice in the learning process (student centered learning).
- 5) To embed learning in social experience (collaboration).

- 6) To encourage the use of multiple modes of representation, (video, audio text, etc.)
- 7) To encourage awareness of the knowledge construction process (reflection, metacognition).

LEARNER-CENTERED EDUCATION



Student-centered learning, also known as learner-centered education, broadly encompasses methods of teaching that shift the focus of instruction from the teacher to the student. Student-centered instruction focuses on skills and practices that enable lifelong learning and independent problem-solving. Student-centered learning puts students' interests first, acknowledging student voice as central to the learning experience. In a student-centered learning space, students choose what they will learn, how they will learn, and how they will assess their own learning.

This is in contrast to traditional education, also dubbed "Teacher-Centered Learning", which situates the teacher as the primarily "active" role while students take a more "passive", and receptive role. In a teacher-centered classroom, teachers choose what the students will learn, how the students will learn, and how the students will be assessed on their learning.

Usage of the term "Student-Centered Learning" may also simply refer to educational mindsets or instructional methods that recognize individual differences in learners. In this sense, student-centered learning emphasizes each student's interests, abilities, and learning styles, placing the teacher as a facilitator of learning for individuals rather than for the class as a whole.

Meaning:

Learner-centered teaching is an approach to teaching that is increasingly being encouraged in higher education. Learner-centered teachings do not employ a single teaching method. This approach emphasizes a variety of different types of methods that

shift the role of the instructors from givers of information to facilitating student learning. Traditionally, instructors focused on what they did, and not on what the students learnt. Educators call this traditional method, “Instructor-Centered Teaching.” In contrast, “Learner-Centered Teaching” occurs when instructors focus on student learning.

Learner-Centered Teaching /Learner -Centered Learning

Educators commonly use three phrases with this approach. Learner-centered teaching places the emphasis on the person who is doing the learning (Weimer, 2002). Learning-centered teaching focuses on the process of learning. Both phrases appeal to faculty because these phrases identify their critical role of teaching in the learning process.

Five Characteristics of Learner Centered Teaching

Active learning, student engagement and other strategies that involve students and mention learning are called learner-centered.

1. Learner-Centered Teaching engages students in the hard, messy work of learning.

Teachers are doing too many learning tasks for students. We ask the questions, we call on students, and we add detail to their answers. We offer the examples. We organize the content. We do the preview and the review. On any given day, in most classes teachers are working much harder than students. I’m not suggesting we never do these tasks, but I don’t think students develop sophisticated learning skills without the chance to practise and in most classrooms the teacher gets far more practice than the students.

2. Learner-Centered Teaching includes explicit skill instruction.

Learner-centered teachers teach students how to think, solve problems, evaluate evidence, analyze arguments, generate hypotheses, all those learning skills essential to mastering material in the discipline. They do not assume that students pick up these skills on their own, automatically. A few students do, but they tend to be the students most like us and most students aren’t that way. Research consistently confirms that learning skills develop faster if they are taught explicitly along with the content.

3. Learner-Centered Teaching encourages students to reflect on what they are learning and how they are learning it.

Learner-centered teachers talk about learning. In casual conversations, they ask students what they are learning. In class they may talk about their own learning. They challenge student assumptions about learning and encourage them to accept responsibility

for decisions they make about learning; like how they study for exams, when they do assigned reading, whether they revise their writing or check their answers. Learner-centered teachers include assignment components in which students reflect, analyze and critique what they are learning and how they are learning it. The goal is to make students aware of themselves as learners and to make learning skills something students want to develop.

4. Learner-Centered Teaching motivates students by giving them some control over learning processes.

Teachers make too many of the decisions about learning for students. Teachers decide what students should learn, how they learn it, the pace at which they learn, the conditions under which they learn and then teachers determine whether students have learned. Students aren't in a position to decide what content should be included in the course or which textbook is best, but when teachers make all the decisions, the motivation to learn decreases and learners become dependent.

Learner-centered teachers search out ethically responsible ways to share power with students. They might give students some choice about which assignments they complete. They might make classroom policies something students can discuss. They might let students set assignment deadlines within a given time window.

5. Learner-Centered Teaching encourages collaboration.

It sees classrooms (online or face-to-face) as communities of learners. Learner-centered teachers recognize, and research consistently confirms, that students can learn from and with each other. Certainly the teacher has the expertise and an obligation to share it, but teachers can learn from students as well. Learner-centered teachers work to develop structures that promote shared commitments to learning. They see learning individually and collectively as the most important goal of any educational experience.

Need For Learner Centered Approach

- Strong, research evidence exists to support the implementation of learner-centered approaches instead of instructor-centered approaches.
- Knowledge of this research helps instructors defend their teaching methods to their students and to more traditional faculty peers.
- The conclusive result of decades of research on knowledge base is that what a person already knows largely determines what new information he attends to, how he organizes and represents new information, and how he filters new experiences, and

even what he determines to be important or relevant.

- The ability to reflect on and regulate one's thoughts and behaviors is an essential aspect of learning. Successful students are actively involved in their own learning, monitor their thinking, think about their learning, and assume responsibility for their own learning.
- Motivational effects. The benefits of learner-centered education include increased motivation for learning and greater satisfaction with school; both of these outcomes lead to greater achievement.
- Research shows that personal involvement, intrinsic motivation, personal commitment, confidence in one's abilities to succeed, and a perception of control over learning lead to more learning and higher achievement in school.
- Development and individual differences. Individuals progress through various ~~common~~ stages of development, influenced by both inherited and environmental factors.
- Depending on the context or task, changes in how people think, believe, or behave are dependent on a combination of one's inherited abilities, stages of development, individual differences, capabilities, experiences, and environmental conditions.

Advantages of Learner Centered Teaching

- It improves learning achievement of students.
- It leads to better retention of the learnt material.
- It improves self – esteem of students.
- It facilitates interaction among group members and stimulates their thinking process to find solution to the problems which they encounter in accomplishing the assigned task.
- It fosters students' reasoning power.

Learner Centered Teaching Vs Teacher Centered Learning

S.No	Teacher Centered Learning	Learner Centered Teaching
1	Knowledge is transmitted from professor to students.	Students construct knowledge through gathering and synthesizing information and integrating it with the general skills of inquiry, communication, critical thinking, problem solving and so on.
2	Students passively receive information.	Students are actively involved.
3	Emphasis is on acquisition of knowledge outside the context in which it will be used.	Emphasis is on using and communicating knowledge effectively to address and enduring and emerging issues and problems in real-life contexts.
4	Professor's role is to be primary information giver and primary evaluation.	Professor's role is to coach and facilitate Professor and students evaluate learning together.
5	Teaching and assessing are separate.	Teaching and assessing are intertwined.
6	Assessment is used to monitor learning.	Assessment is used to promote and diagnose learning.
7	Emphasis is on right answers.	Emphasis is on generating better questions and learning from errors.
8	Desired learning is assessed indirectly through the use of objectively scored tests.	Desired learning is assessed directly through papers, projects, performances, portfolios and the like.
9	Focus is on single discipline.	Approach is compatible with interdisciplinary investigation.
10	Culture is competitive and individualistic.	Culture is co-operative, collaborative and supportive.

CONCLUSION

Teacher education provides a multiplier effect. As the model that leads our students to understand

